

# MONTANA FETAL, INFANT AND CHILD MORTALITY REVIEW

FIRST REPORT  
Using 1997-2000 Data



Mission: To identify, address and potentially decrease the numbers of preventable fetal, infant and child deaths in the state of Montana.

**NOVEMBER 2002**

# ACKNOWLEDGMENTS

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This first report is a product of the efforts of many Montanans dedicated to the goal of reducing the numbers of preventable deaths of infants and children in our state. Special thanks to the members of the State FICMR team, the members of the local review teams and especially the coordinators at the local level.

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### The Missoula County FICMR Team

Thank you to all the original members of the Missoula County FICMR Team. As members of the first local multidisciplinary mortality review team in Montana, they led the way for the rest of the state. Through their leadership and commitment, protocols and procedures for the local FICMR process were developed and tested

### Theresa Covington, MPH

We wish to acknowledge Teresa Covington, the Program Director of the Michigan State Child Death Review, and her staff at the Michigan Public Health Institute. They provided guidance, mentoring, materials and training throughout the development of our program. Thank you all for your generous assistance.

# Montana State Fetal, Infant and Child Mortality Review Team, 2002

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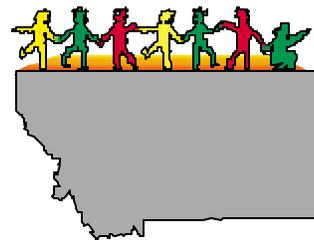
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# INTRODUCTION

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## **Purpose of This Report**

The purpose of this report is to share the findings and recommendations of the community level reviews of fetal, infant and child deaths and to illustrate the wide array of contributory factors as identified by local review teams. The time period represented in this report is January 1, 1997 through December 31, 2000. During this four-year period, local FICMR teams reviewed 427 fetal, infant and child deaths. It is crucial to note that this figure represents only the cases reviewed and submitted for data entry, rather than the total number of deaths that occurred in Montana during the four-year period outlined above. Also imperative to remember is that this report represents hundreds of Montana families.

## **History of Montana FICMR**

Montana public health workers had long been aware of the need for a comprehensive way to look at why Montana babies and children die. In 1989 the state legislature passed Montana's Initiative for the Abatement of Mortality in Infants (MIAMI), which mandated fetal and infant mortality review. With limited funding, Montana's largely volunteer fetal and infant mortality review process began gathering data in 1990. A portion of the Title V funding was realigned to support a small state-level staff and provide support to local agencies. Local MIAMI providers, primarily county health departments, were encouraged and then contractually required to begin collecting information on fetal and infant deaths within their jurisdictions. In 1990 a multidisciplinary state level team began reviewing the local review data. By 1993, it became apparent that the state level process was not sufficient to manage the growing numbers of cases referred from the counties nor the concomitant needs for data entry, data management, analysis and reporting. What also emerged was the realization that much of the detail needed for thorough reviews was not available in the abstracted cases. The state review could not measure critical local determinants or implications related to the county cases. In 1994 the Department of Family Services and the (then called) Department of Health and Environmental Sciences supported a pilot program in Missoula to create a local review process that would encompass deaths from 20 weeks gestation through the 17<sup>th</sup> year. The initial task was to draft legislation to enable access to confidential information necessary to the review process. The "Fetal, Infant and Child Mortality Prevention Act" was adopted into law in May 1997. In 1998 DPHHS received a three year federal Health Resources Service Administration (HRSA) grant to continue the development and implementation of a statewide mortality review program.

## FICMR (Fetal Infant Child Mortality Review)

The original programmatic goals for FICMR were:

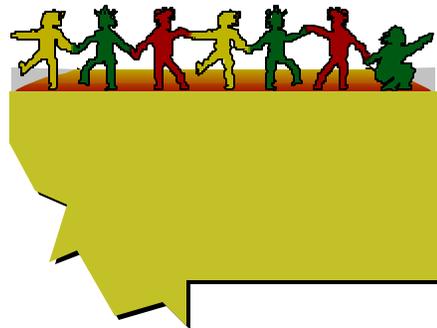
1. to accurately identify and document the cause of every fetal, infant and child death;
2. to broaden the geographical scope of local review by assisting counties to establish local review teams;
3. to increase the potential for case reviews to 100% of all Montana's fetal, infant and child deaths;
4. to identify counties and tribal governments in Montana that had the interest and resources to develop local FICMR teams;
5. to accomplish planning for sustaining FICMR at the local and state levels;
6. to establish a state-level data repository based on a consistent minimum data set which would be eventually aligned with the state integrated data system; and
7. to identify and address public health issues associated with fetal, infant and child deaths.

## Legislative History

Montana Fetal, Infant and Child Mortality Review is a statewide effort authorized by statute to better understand the issues associated with fetal, infant and child mortality and morbidity and to develop strategies to prevent future injuries and deaths.

In 1997, the Montana legislature passed HB 333, "The Fetal, Infant and Child Mortality Prevention Act." (**Appendix E**) The provisions of the Act:

1. allowed local FICMR teams to access health care information without the need for a signed consent;
2. allowed teams to access criminal justice information through the county attorney or a person designated by the county attorney;
3. set out the permissible functions of mortality review teams;
4. set out minimum requirements of membership and management of mortality review teams;
5. provided penalties for the unlawful release of confidential information by members of mortality review teams; and
6. mandated that the Montana Initiative for the Abatement of Mortality in Infants (MIAMI) be coordinated with local mortality review teams.



# THE FICMR PROCESS

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## The Local Review Team

Montana statute requires that local mortality review teams be multidisciplinary and include at least five members from a recommended list of medical professionals and individuals representing local, state and federal agencies. A local review team's core membership should include a medical provider and representatives from the following:  
public health, county coroner, department of family services, local school district, mental health, local hospital, tribal government and the county attorney.

## Criteria for Case Review

Local FICMR teams are asked to review all cases of fetal, infant and child deaths that occur within their county and/or tribal jurisdictions.

## The Review Process

A multi-disciplinary, multi-agency team of professionals conducts case reviews. Team members provide community perspective, expertise and knowledge of public health issues. The team identifies contributing factors, assesses the potential for improving outcomes and makes recommendations for prevention based on review findings.

Local FICMR teams perform an in-depth analysis of cases using a de-identified standardized data set. The team discusses each case, identifies relevant risk factors, determines to what degree the death may have been preventable, and how similar deaths may be prevented in the future. All information shared by the local team is confidential, including the discussion and deliberations by the team. Team members sign confidentiality statements and are apprised of the statutory requirements for confidentiality at each meeting.

Evaluation of the preventability of each death is critical to the process of mortality review. By considering, "*Could anything have been done to prevent this death?*" the team considers not only the death in question, but also the potential for the prevention of future deaths of infants or children in similar circumstances.

Questions asked in the determination of preventability:

What factors contributed to this death, e.g., substance abuse by caretaker or child, lack of safety restraints, depression, inappropriate health care or treatment?

Were there issues that related to service delivery or "systems" interaction?

Were all appropriate actions taken?

The definition of preventability for local reviews is as follows: “A preventable death is one in which, with retrospective analysis, it is determined that a reasonable intervention (e.g. medical, educational, social, legal or psychological) might have prevented the death. Reasonable is defined by taking into consideration the condition, circumstances or resources available.” Local teams must support the determination of a preventable death with an explanation, and provide recommendations for prevention of similar deaths.

### **Examples of Preventable Deaths:**

- Preventable prematurity
- Intentional and non-intentional injuries
- Lack of access to medical care leading to a fatality
- Neglect and reckless conduct by professionals (including religious and medical)
- Fatal injuries sustained in motor vehicle accidents without use of safety restraints

### **Examples of Undetermined Deaths:**

- Any death for which data were insufficient for informed judgment
- Deaths which involved equivocal legal evidence of abuse, neglect or inflicted injury beyond the scope of the team to resolve

### **Examples of Non-Preventable Deaths:**

- Terminal medical conditions
- Fatal injuries sustained in the course of a natural disaster
- Unforeseeable medical complications leading to death

## **Using Review Findings for Community Education and Action**

Examining local mortality data is the first step in answering the questions:

“Why do infants and children die in our community?”

“What can be done to prevent such deaths in the future?”

Utilizing data to help describe potential risks for morbidity and mortality in communities is an essential activity of mortality review. One of the major challenges for review teams is to use findings for the development of prevention recommendations. Local mortality review teams must develop strategies and linkages with the community for findings and recommendations. There are several routes by which such communication can be transferred to the community for action and education.

- The multi-disciplinary, multi-agency representation on the team helps facilitate the flow of information and insights back to member practices, agencies, professional groups, and health care facilities

- Team members often serve on other community teams, e.g. domestic violence prevention, child protection teams, safety teams, etc., which may provide further dissemination of identified concerns and issues
- The local health board should be regularly apprised of findings and concerns
- Key agencies and other ad hoc community groups should be informed of findings for potential implementation of action steps and educational campaigns
- The media may be apprised of identified concerns so that the information can be presented to the public in public service announcements or other forms of public education or news reports
- Community events such as county fairs and health fairs may be opportunities for health and safety education

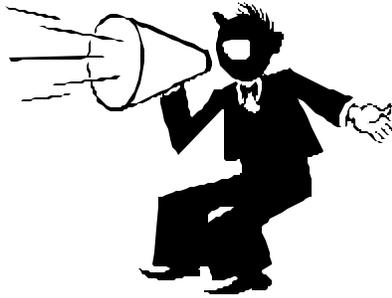
### **Data Collection, Management and Reporting**

Local teams are required to submit the State of Montana, Fetal/Infant/Child Death Review Report form to the Department of Public Health and Human Services for each death reviewed. The de-identified case information is entered into the state's data system for tracking and analysis.

### **The State FICMR Team**

The State FICMR team is critical to Montana's FICMR program, serving in an advisory capacity to local review teams. The team utilizes local case review data for recommendations for potential Maternal Child Health policy development, and for support of prevention activities at the state and local levels. Members include local FICMR coordinators, (one each from a frontier, rural and urban county), medical specialists, and representatives from several key state and federal agencies. Additional members include a representative from the Native American Advisory Council, the Montana Sheriff's and Peace Officer's Association and the Montana Coroner's Association.





## DISCLAIMER

There were a total of 865 fetal, infant, and child deaths in Montana from 1997 through 2000. Four hundred twenty-seven (427) of these deaths were reviewed by the local review teams.

This report has three purposes:

1. To provide summary information on all 865 fetal, infant and child deaths;
2. To present the findings from the 427 submitted reviews; and
3. To assess the Montana FICMR process.

The intent in providing a summary of all deaths is to establish the “denominator” for determining which deaths are being reviewed (by age and race of decedent, location and cause of death). This information helps determine where additional effort needs to be directed to expand and improve the review process, and to assess how “representative” the reviewed deaths are of the entire deceased population.

Therefore this report includes a mix of data on all Montana fetal, infant and child deaths and the findings from the reviews.

**The “reviewed” deaths are not a scientific sample of all fetal, infant and child deaths in Montana. The reader should be cautious in extrapolating findings based on the death reviews in this report to all of the deaths occurring in the fetal, infant and child population of Montana.**

# PREVENTABILITY

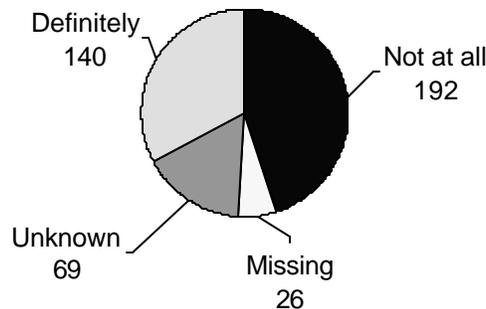
**42% of reviewed deaths were *PREVENTABLE***

A primary purpose for the fetal, infant, and child review process is to identify the prevention potential for the death being reviewed. This information can provide guidance for local prevention activities, and, aggregated at the state level, may indicate opportunities for broader action.

The teams determined that 140 of the 401 reviewed deaths with prevention findings were "Definitely" preventable. (26 reviews did not include prevention findings because the first version of the data collection form did not require documentation of preventability.)

The teams decided that the preventability of 69 deaths could not be determined, and that another 192 deaths were "Not at All" preventable. Thus, 42% of the deaths with a specific finding ("Definitely" or "Not at All") were judged preventable. (**Figure F1**)

**Figure F1. FICMR Team Prevention Findings; Montana, 1997-2000**



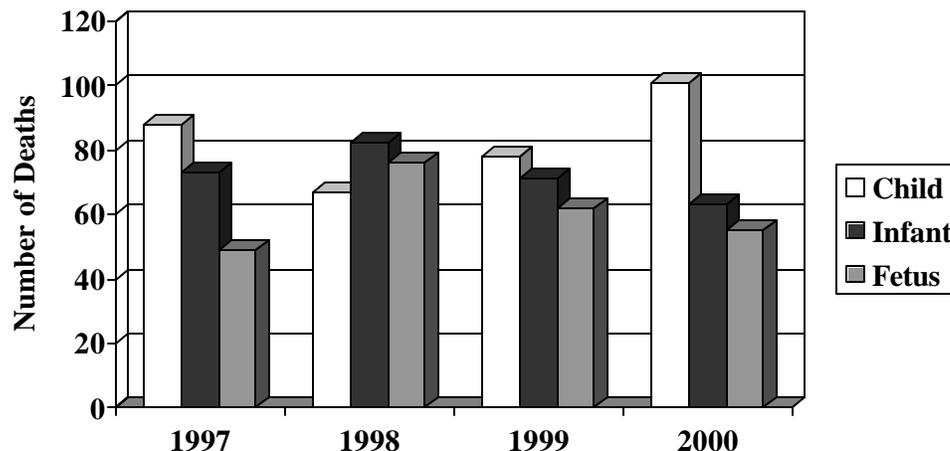
The manner of death is strongly associated with the determination of preventability. **Table 1(Appendix D)** presents the percent preventable for selected age and manner of death categories.

There were 127 reviews of 240 infant deaths with manner of death attributed to natural causes, and the teams determined that approximately 15% of those deaths (with adequate information to assess preventability) were preventable. The majority of infant deaths are due to natural causes, and such deaths are not likely to be preventable, but the accidental and violent deaths are usually considered preventable.

## Progress Report on the Montana FICMR Process

The total number of fetal, infant, and child deaths in Montana varies slightly from year to year, and averages 216 per year (**Figure 1**).

Figure 1. Fetal, Infant, and Child Deaths; Montana, 1997-2000, by Age Group  
(Source: death certificate)



There are usually more child deaths (ages 1 to 17) than infant or fetal deaths. The infant mortality rate over the four-year period is 6.7 deaths per 1,000 births, and this rate is lower than the national rate (7.2 in 1998). (The Montana rate in 1998 (7.4) was slightly higher than this national rate.) The child death rate in Montana over the four-year period has been approximately 27 deaths per 100,000 children ages 1 to 14. (This is an estimate using the 2000 Census data for the population denominator.) The national child death rate in 1998 was 24 deaths per 100,000.

The extent of the problem of fetal, infant, and child deaths varies with the population of children across Montana counties. There are four counties with fewer than 300 infants and children under the age of 18 (2000 U.S. Census data); and there are over 32,000 children in Yellowstone County. Five counties (Carter, Golden Valley, McCone, Treasure, and Wibaux) had no reported FIC deaths over the four-year period, while Yellowstone had more than 100. Each year, eleven additional counties, on average, do not report any FIC deaths. (**See Appendix A, Table A1 for the summary of fetal, infant and child deaths by county, by year.**)

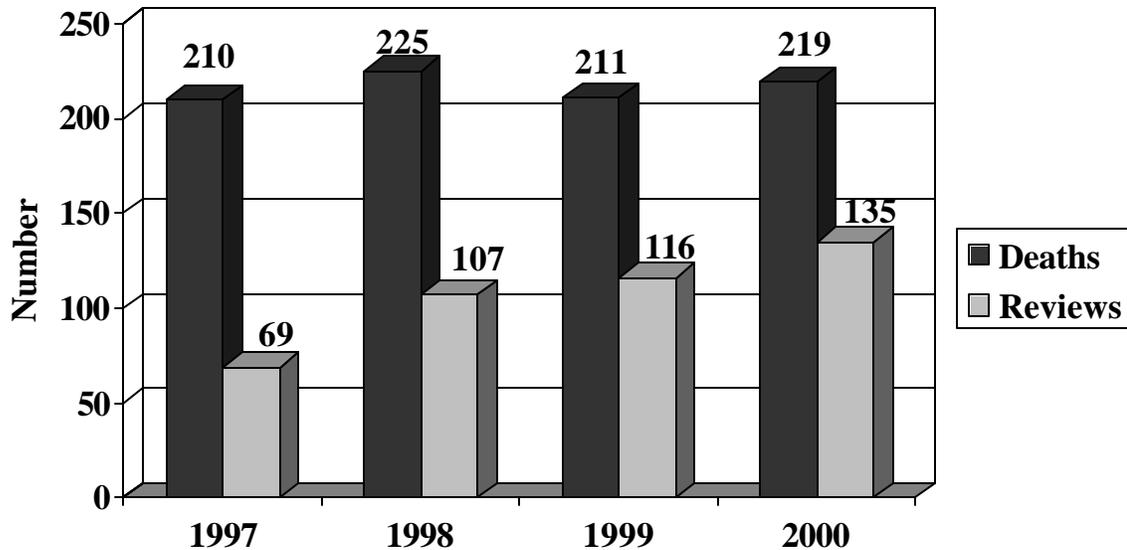
The “burden” of reviewing fetal, infant and child deaths is obviously unevenly distributed across Montana counties. The smaller counties would have fewer reviews, but they may also go several years with no deaths to review. It would be difficult to assemble and maintain a review team that meets so infrequently. As a response to this situation, several sets of counties cooperate in the review of deaths. There were ten reviews over the four years that reported a different county of residence than county of review, and five of these reviews appear to represent a cooperative review arrangement.

Four hundred and twenty-seven reviews were completed and submitted during the first four years of the Montana fetal, infant, and child death review process. **(Table 2, Appendix D)**

The number and proportion of FIC deaths that are reviewed in Montana has increased steadily over the 1997 to 2000 period **(Figure 2)**.

Figure 2. FIC Deaths and Reviews; Montana,  
by Year of Death

(Source: death certificate and FICMR)



The number of counties participating in the review process has also increased over the four-year period, and additional review teams continue to “come on-line.” Only seven counties submitted a total of 69 reviews (for residents of 10 counties) in 1997. In 2000, 17 counties submitted 135 reviews, which were over 60% of all deaths in those 17 counties. **(See Appendix A, Table A2 for the summary of Fetal Infant Child reviews, by county, by year.)**

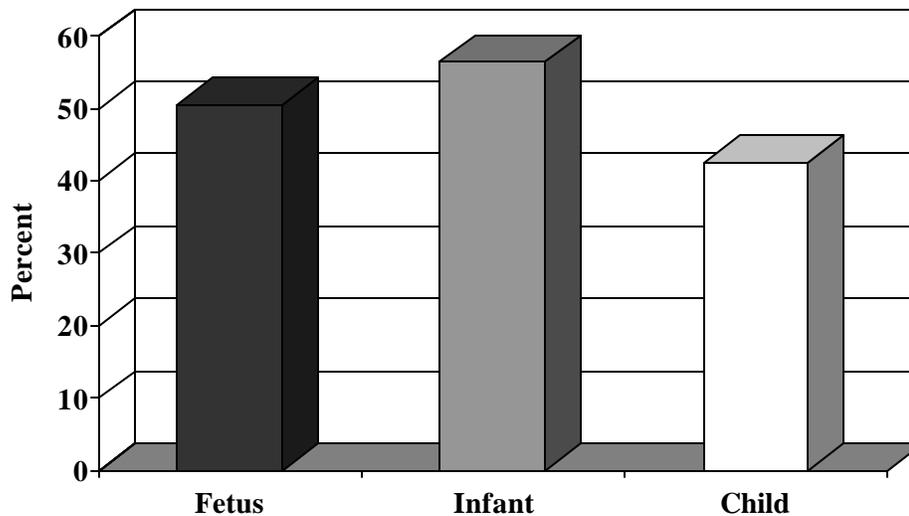
# OVERVIEW OF LOCAL TEAM REVIEWS

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The Montana fetal, infant and child death review process is still in its implementation phase. In each of the past three years at least three new teams have submitted reviews. The completion of reviews for 49% of all deaths during the four-year period represents a significant accomplishment. Over 220 deaths occurred in counties that did not submit any reviews - either there was no review team or the team was inactive. If these deaths were excluded, the review rate would increase to two-thirds, and that does not account for the gradual team implementation during the four years. This report provides an opportunity to celebrate accomplishments - and to look ahead.

The review teams reviewed a greater proportion of fetal or infant deaths than child deaths. **(Figure 3)**

Figure 3. Proportion of Deaths Reviewed, Montana; 1997-2000, by Age Group  
(Source: death certificate and FICMR)



When the infant and child deaths are broken down into finer age categories (**Table 3, Appendix D**), the proportion of deaths reviewed is lower for pre-teens (10 to 14) and teens (15 to 17) compared to younger children and infants. Since the proportion of deaths that are due to accidents increases with age, and the accidental deaths are more likely to be preventable, an emphasis on the review of accidental child deaths could be productive for prevention efforts.

**(Table 4, Appendix D)** provides a summary of infant and child deaths and reviews by manner of death. (*The manner of death for fetal deaths is reported on both the fetal death certificate and the fetal death review as either natural or unknown.*) Although there are more reviews of accidental child deaths than of any other manner of child death, they still represent the smallest proportion (39%) of any infant or child manner of death category.

According to the 2000 U.S. Census, there were 230,062 infants and children under the age of 18 in Montana in 2000. About ten percent of that population is Native American, 85 percent is white, and all other races comprise five percent. However, 16.8% of the fetal, infant, and child deaths are Native American. **(Table 5, Appendix D)** A disproportionate number of Native American children in Montana are dying.

### **Infant Mortality**

One hundred and sixty-three infant deaths (birth to the first year of age) were reviewed by local teams. The three primary causes of death for these infants were: 1. congenital anomalies 2. prematurity and 3. Sudden Infant Death Syndrome. Infant mortality is often divided into two sub-categories: perinatal and postneonatal.

### **Perinatal Deaths**

Montana Vital Statistics defines perinatal deaths as the total of registered fetal and neonatal deaths. A fetal death is the birth of a fetus that weighed 350 grams or more or a delivery that occurred after 20 weeks gestation and there was no evidence of life after the birth. Neonatal deaths are infant deaths that occur in the first 27 days of life. Poor perinatal outcomes are often associated with adverse events or conditions that occurred prenatally or at delivery. Leading causes of death of the perinatal cases reviewed were: 1. congenital anomalies (19%), 2. complications of labor and delivery (18%) and 3. prematurity (15%).

### **Postneonatal Deaths**

Postneonatal deaths are those occurring from the age of 28 days to one year. Deaths that occur in the postneonatal period are more often related to environmental or unknown factors. Leading causes of death for all Montana infants from 28 days and older were: Sudden Infant Death Syndrome (32%), undetermined (17%), and congenital anomalies (16%).

### **Child Deaths**

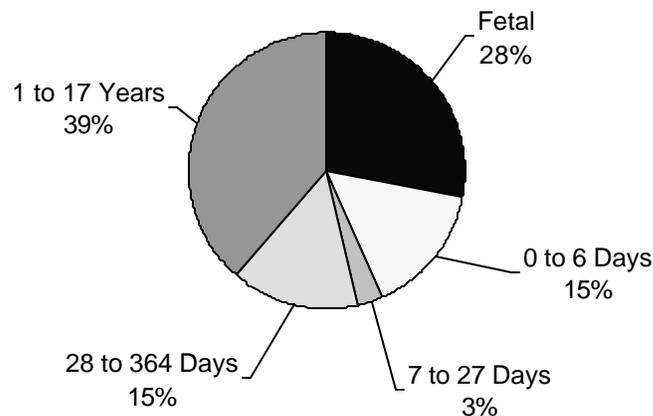
According to the Centers for Disease Control (CDC) unintentional injury is the number one cause of death in children and adolescents. The primary cause of death of children ages 1 – 17 reviewed by local FICMR teams was unintentional injuries at 50%, followed by natural causes (29%) and suicide (12%).

## FETAL and INFANT DEATHS

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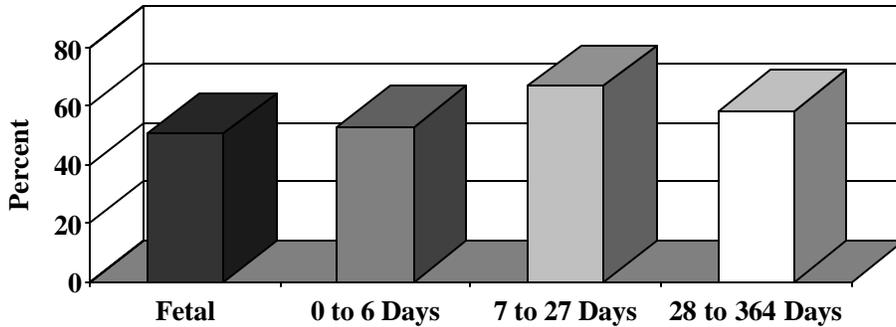
The majority of all infant and child deaths occur within the first year of life. If the fetal deaths are added to the infant deaths, then 61% of total fetal, infant, and child (< 18 years of age) deaths in Montana occur before age one. **(Figure 5)** Fetal and infant deaths are commonly grouped in several different age combinations. Perinatal deaths include fetal deaths plus infant deaths in the first month of life. There were 375 perinatal deaths in Montana during the four-year period from 1997 through 2000. **(Table 6, Appendix D)** Neonatal deaths are infant deaths in the first 27 days of life. There were 160 neonatal deaths during the four years. The 133 infant deaths ages birth through six days are included in both perinatal and neonatal categories. The provided age categories allow the creation of either perinatal or neonatal data. The post-neonatal period is 28 days through 364 days.

**Figure 5. All FIC Deaths,  
by Age Group; Montana, 1997-2000**



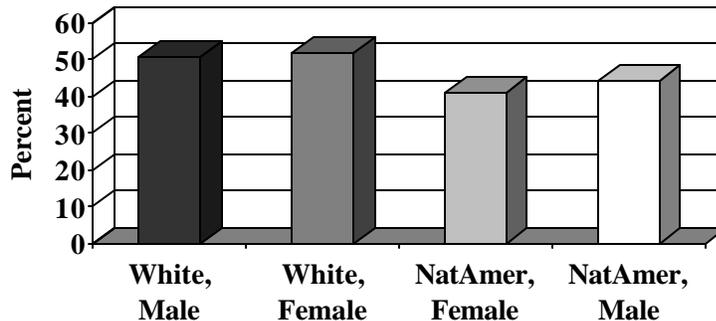
The local review teams reviewed fifty-four percent of all fetal and infant deaths. The deaths of infants ages seven through 27 days were more likely to be reviewed, but there were very few deaths (27) in that age range. The percent reviewed appeared to increase slightly with age for the other three age groups. **(Figure 6)**

**Figure 6. Ratio of Reviews to Deaths,  
Fetal and Infant Deaths, by Age; Montana 1997-2000**



The white fetal and infant deaths are slightly more likely to be reviewed than the Native American deaths. **(Figure 7)** There are two apparent explanations for a racial difference in review proportions. The simplest explanation is that there may not be review teams active in some areas with substantial Native American populations. An analysis of deaths and reviews by county and race would confirm or refute that explanation. Another explanation is related to an apparent difference in the reporting of race between death certificates and fatality reviews. There are more reviews of FIC deaths for “other” races (29) than there are reported deaths (12). If an infant is more likely to be identified as Native American on the death certificate than in the review, the ratio of reviewed to deaths would be lower than a “true” ratio. The possible misclassification of race could be examined using linked fatality reviews and death certificates.

**Figure 7. Ratio of Reviews to Deaths,  
Fetal and Infant Deaths, by Race/Gender;  
Montana, 1997-2000**

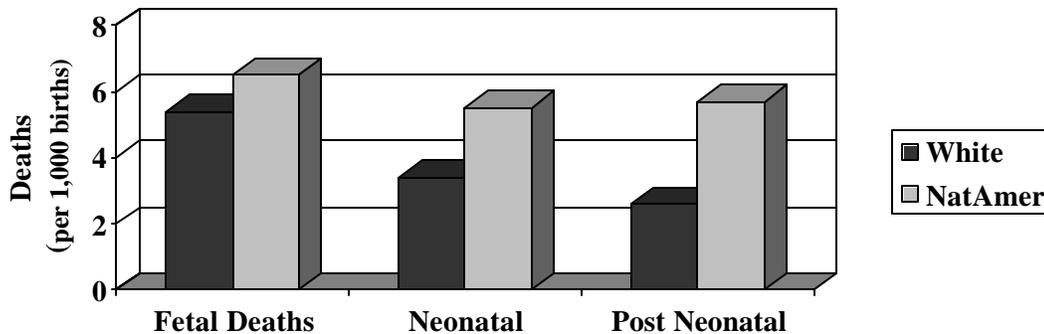


The causes of fetal and infant deaths (as reported on the death certificates) vary by age group. **(Table 7, Appendix D)** A large majority of fetal deaths are associated with developmental or “structural” problems – placental abnormalities (39 deaths), umbilical conditions (40 deaths) – and maternal complications or conditions (38 deaths). Unknown (or unspecified) cause, which is “7999” in ICD9 or “R99” in ICD10, is reported for 37 (15%) of the fetal deaths. These four categories account for 64% of all fetal deaths.

Forty-seven (35%) of all deaths of infants from birth through six days are reported as due to congenital anomalies. Preterm delivery (16 deaths) and maternal pregnancy complications (12 deaths) are the next largest contributors to death in this age group. Sudden infant death syndrome (SIDS) is the largest single cause of post neonatal infant death. Thirty percent of all post neonatal deaths were reported as due to SIDS. The next largest causes were the “unknown” category (21 deaths) and congenital anomalies (20 deaths). There were also 17 post neonatal deaths that were due to accidents or violence.

**Table 8 (Appendix D)** provides the fetal and infant mortality rates for Montana for the four-year period. The IMR (Infant Mortality Rate) for the period (6.7 deaths per 1,000 live births) compares favorably with the national rate in 1998 (7.2). However, there is a racial disparity between Caucasian (white) infants and Native American infants. **(Figure 8)** A Native American infant is almost twice as likely to die in the first year of life as a white infant (11.2 deaths per 1,000 live births for a Native American versus 6.0 for the white infant). The difference exists for both neonatal and post neonatal deaths, but the disparity is not as great for the fetal deaths. (Note: The denominator for calculating fetal death rates is the number of live births plus the number of fetal deaths.)

**Figure 8. Fetal and Infant Death Rates, Montana, 1997-2000**



# SUMMARY OF REGIONAL FINDINGS

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## Health Planning Regions

Montana is divided into five geographic regions for the purpose of comprehensive health planning. During the time period covered by this report only a portion of the counties from each region were reviewing cases, therefore this data does not represent all the incidents of fetal, infant and child deaths for any individual region. Population density for each region must also be considered. Region V for example, has the largest population base.

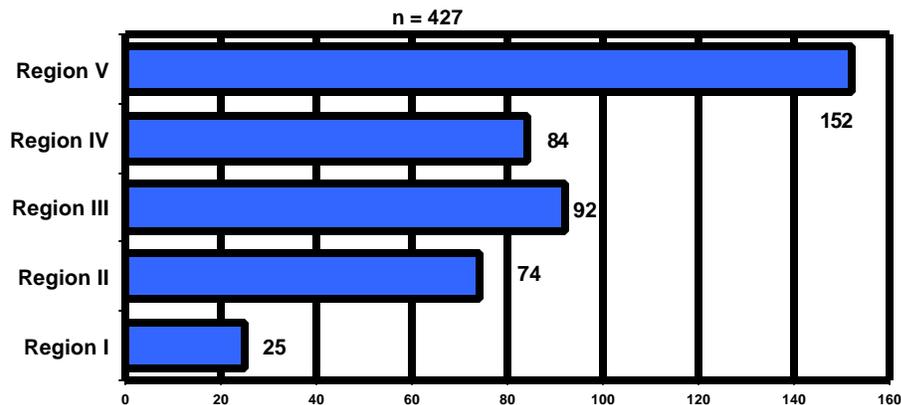
**Appendix B** provides additional regional data.

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**Montana Counties with FICMR Teams, by Region**

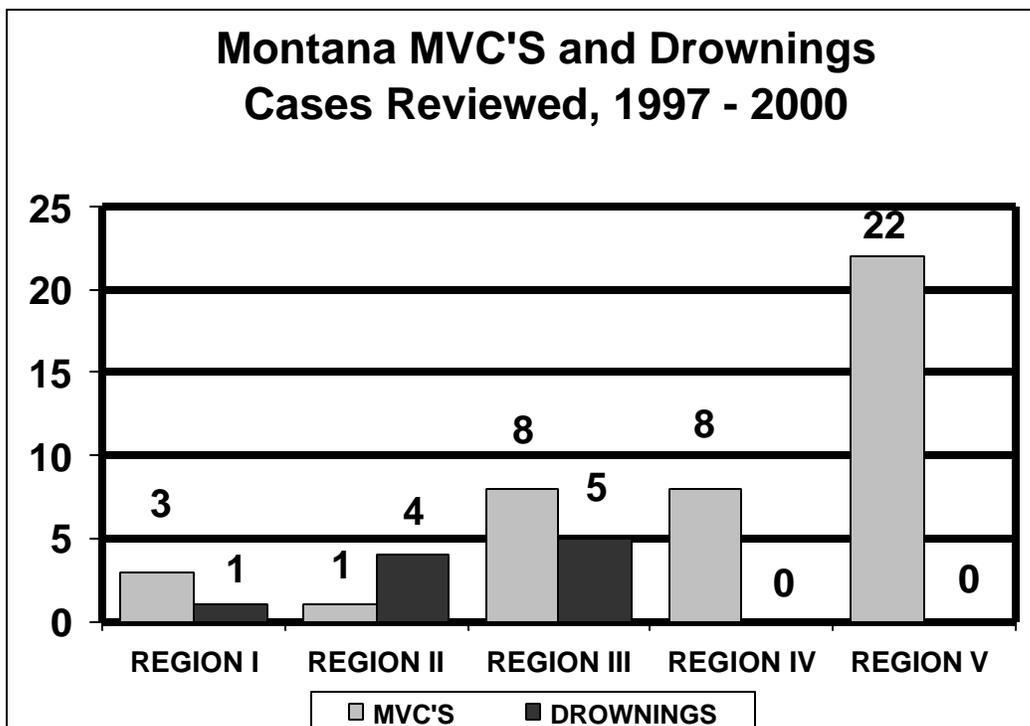
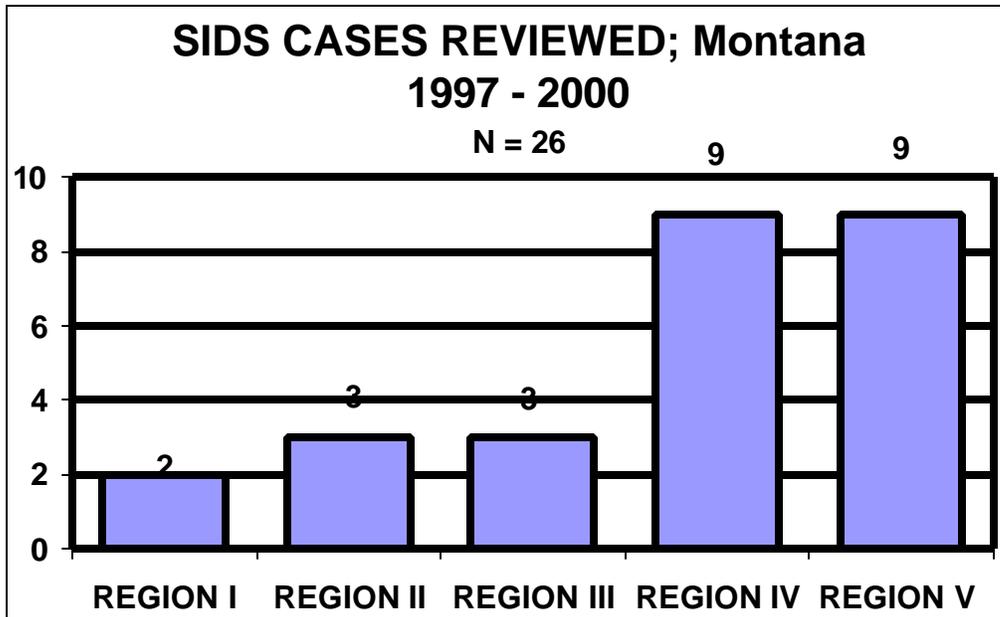
<i>EAST/REGION I</i>	<i>N. CENTRAL/REGION II</i>	<i>S. CENTRAL/REGION III</i>	<i>SW/REGION IV</i>	<i>NW/REGION V</i>
<i>Custer Co.</i>	<i>Blackfeet/IHS</i>	<i>Big Horn Co.</i>	<i>Beaverhead Co.</i>	<i>Flathead Co.</i>
<i>Daniels Co.</i>	<i>Cascade Co.</i>	<i>Fergus Co.</i>	<i>Deer Lodge Co.</i>	<i>Lake Co.</i>
<i>Dawson Co.</i>	<i>Choteau Co.</i>	<i>Yellowstone Co.</i>	<i>Jefferson Co.</i>	<i>Lincoln Co.</i>
<i>Richland Co.</i>	<i>Glacier Co.</i>		<i>Gallatin Co.</i>	<i>Mineral Co.</i>
<i>Roosevelt Co.</i>	<i>Hill Co.</i>		<i>Lewis &amp; Clark Co.</i>	<i>Missoula Co.</i>
<i>Rosebud Co.</i>	<i>Liberty Co.</i>		<i>Park Co.</i>	<i>Ravalli Co.</i>
<i>Sheridan Co.</i>	<i>Teton Co.</i>		<i>Silver Bow Co.</i>	<i>Sanders Co.</i>
<i>Valley Co.</i>				

**Cases Reviewed by Region; Montana,  
Entered to Date 1997 - 2000**



## REGIONAL FINDINGS CONTINUED

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**REVIEW TEAM FINDINGS  
by CAUSE OF DEATH**

1997 – 2000 (ages 0-17)  
 - Cases Reviewed 26  
 - Montana SIDS cases 41

FICMR Teams Reviewed 63% of Montana SIDS Deaths

## Sudden Infant Death Syndrome (SIDS)

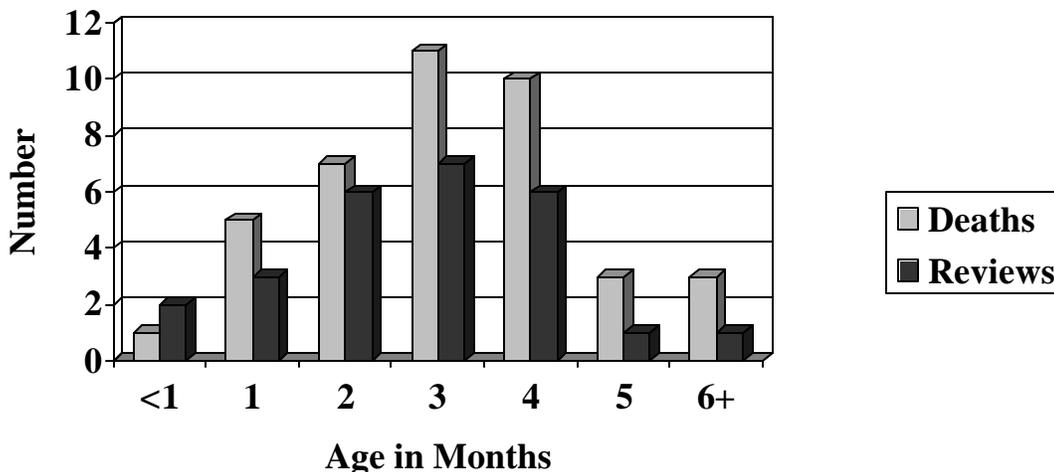
Of the SIDS cases reviewed, 68% of the babies were found in the prone position

Sudden Infant Death Syndrome (SIDS) is the diagnosis given for the sudden death of an infant under one year of age that remains unexplained after a complete investigation. The investigation should include an autopsy, examination of the death scene, and review of the symptoms or illnesses the infant had prior to dying and any other pertinent medical history.

The “Back to Sleep” campaign was initiated in 1994 to address the rising incidence of SIDS and encourages that babies be put to sleep on their backs. Although the number of deaths attributed to SIDS has declined since the initiation of the campaign, SIDS remains the leading cause of death in infants between 1 month and 1 year of age.

The Montana infant mortality rate due to SIDS over the past four years has been 0.92 deaths per 1,000 live births (40 / 43,356). Eighty-five percent (34 / 40) of the SIDS deaths were infants less than five months old. (**Figure SID1**) Three infants were six months or older at death.

Figure SID1. SIDS Deaths and Reviews; Montana, 1997-2000, by Age at Death



The fatality review data indicates evidence of prior abuse for four infants (of the 26 cases reviewed) that died with cause attributed to SIDS. One of these deaths had confirmed abuse and another death reported alleged abuse. Two of the deaths had neither substantiated nor alleged abuse indicated.

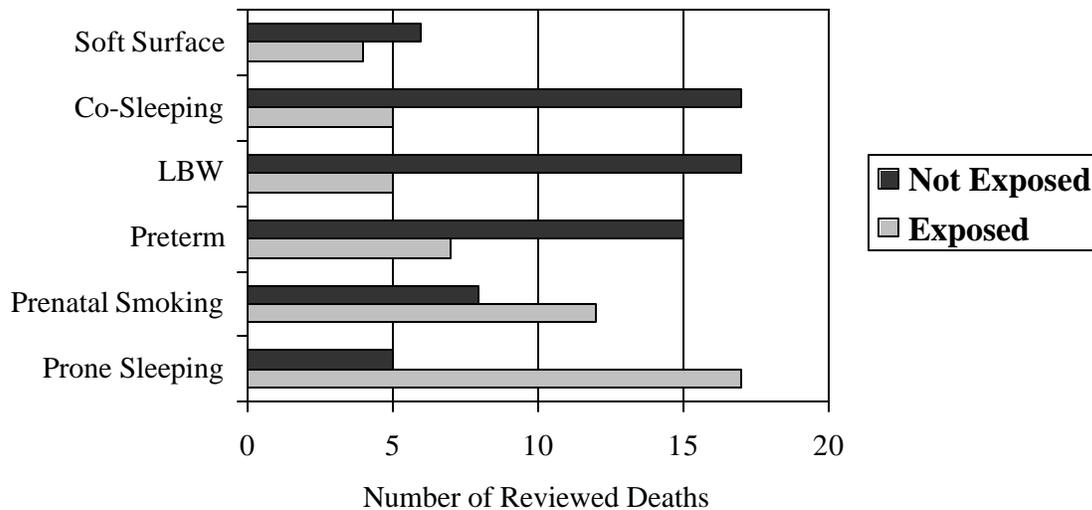
## Recognized Risk Factors<sup>1</sup>

Although the cause of SIDS remains undefined, research has identified risk factors that appear associated with SIDS deaths:

- Sleeping on the stomach or side
- Soft sleep surfaces and loose bedding
- Overheating and use of heavy bedding
- Prenatal smoking and second-hand smoke exposure after birth
- Sleeping in crowded conditions with other people and/or objects
- Preterm birth and low birth weight

Of the 26 cases reviewed, 24 had at least one of the major risk factors for SIDS. **(Figure SID2)**

Figure SID2. Identified SIDS Risk Factors; Montana, 1997-2000



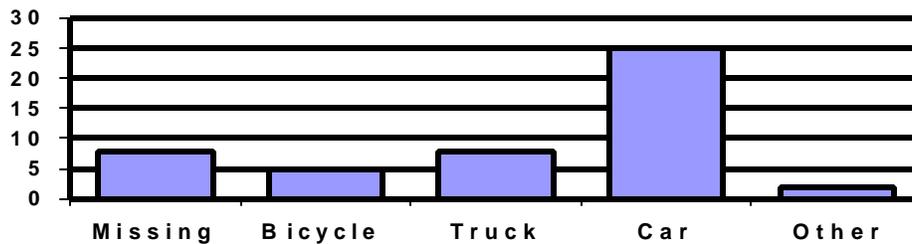
In two cases, risk factors were unknown at the time of review. Sleep position is a key risk factor, with the recommendation being that the infant is placed on its back to sleep. In the 22 SIDS cases where sleeping position was specified, the baby was on its stomach in 15 of the cases (68%), on its side in 2 and on its back in five.

Maternal smoking during pregnancy and second-hand smoking in the infant's environment are also recognized major risk factors. An infant exposed to tobacco smoke has almost a five times greater risk of SIDS than an unexposed infant. Although scientists are having difficulty distinguishing between the effects of prenatal smoking by the mother and second-hand postnatal smoke exposure, it is believed that prenatal smoking is the greater risk factor.

## Cultural Differences

African American babies are 2.4 times more likely than white babies to die of SIDS. Native American babies are 2.8 times more likely to die of SIDS. According to a study in the Journal of the American Medical Association, between 1994 and 1998, 17% of white babies and 32% of black babies were still sleeping on their stomachs.<sup>2</sup> Primary care providers need to make the "Back to Sleep" recommendation to parents as early as possible since the risk of SIDS is greatest in the first few months of life. Community members, such as public health nurses, tribal health care providers, Indian Health Service (IHS), and the Women, Infants and Children (WIC) providers should reinforce the importance of the back sleeping position.

**Type of Vehicle (Cases Reviewed);  
Montana, 1997-2000**



Of the twenty-six cases reviewed, five were Native American infants.

## Child Care

SIDS deaths occurring in child care settings are recognized as a new area of concern. A study by the Children's National Medical Center found that 20.4% of SIDS cases occurred in day care settings, often to infants without most of the known risk factors.

One possible explanation is "unaccustomed prone sleeping." Unaccustomed prone sleeping occurs when babies who were accustomed to sleeping on their backs at home were placed on their stomachs at day care. Back sleeping infants may lack the ability to arouse and escape potentially asphyxiating environments, which may be due to lack of strength in their neck muscles. For this reason, it is essential that back sleeping babies be given "tummy time" when awake to increase strength in their neck muscles.<sup>3</sup>

According to US Census Bureau data, approximately one half of infants in organized child care are in family child care homes, with the other half in child care centers. One would therefore expect similar numbers of SIDS deaths. Instead, studies have found an increased number of SIDS deaths in family child care homes. Five of Montana's reviewed SIDS deaths occurred in childcare settings. As opposed to child care centers, family child care providers may or may not be registered/licensed and are less regulated. Consequently, dissemination of the "Back to Sleep" information to these providers is difficult. Although there is no formal data on age and educational level of child care providers, many childcare center employees are young mothers, who may be more likely to be aware of back sleeping guidelines from experience with their own children. Family childcare providers are often older women who have children school age or older, so are unlikely to have had personal experience with infant back sleeping.

## **Comprehensive Scene Investigations**

Comprehensive scene investigations are vital to determining the actual cause of death and to make appropriate risk reduction recommendations. Local reviews found that 15% of reviewed cases diagnosed as SIDS had incomplete investigations. Three cases had no scene investigation by law enforcement.

## **Community Actions Implemented to Reduce SIDS**

- SIDS awareness campaigns, including distribution of "Back to Sleep" information
- Public Service Announcements on safe sleep practices and co-sleeping

## **State-wide Actions Implemented to Reduce SIDS:**

- 100% review of SIDS deaths in Montana by local FICMR teams. SIDS cases occurring in counties without local FICMR teams are referred to neighboring counties with review teams
- Issuance of a statewide press release by the Department of Public Health and Human Services in support of the American Academy of Pediatrics policy statement for "Safe Sleep Practices in Infant Sleeping Environment and Sleep Position"
- Provided outreach to every hospital in Montana encouraging examination of their policy regarding infant sleep position and requesting that they model the "Back to Sleep" message in their nurseries
- Disseminated a "SIDS Guide For Child Care Providers" to 2,500 registered day care providers
- Developed and distributed a copy ready Obstetric Discharge Checklist which includes a "Back to Sleep" notation to every Montana hospital

## State-wide Prevention Recommendations:

- Require that a SIDS diagnosis meet the criteria of autopsy, scene investigation and review of medical history
- Investigate possibility that the Vital Statistics Bureau of the Department of Public Health and Human Services notify the State Medical Examiner whenever a death certificate is received which shows SIDS as the cause of death, but for which no autopsy was done, or scene investigation completed
- Provide and reinforce safe infant sleep messages to all parents and caregivers
- Encourage parents to provide “tummy time” for babies when they’re awake.
- Incorporate SIDS risk reduction and safe sleep materials in Montana’s statewide prenatal Tobacco Use Prevention Program
- Offer and encourage training for coroners and law enforcement personnel in the thorough investigation of unexpected infant and child deaths
- Work with Indian Health Service and Tribal Health to develop culturally appropriate SIDS education materials and a means of distribution



1997 – 2000 (ages 0 – 17)

- Cases Reviewed

87

- Montana Totals

204

**FICMR Teams Reviewed 43% of Montana  
Unintentional Injury Deaths**

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## UNINTENTIONAL INJURIES

**Unintentional injury deaths were twice as high for Native Americans as for white children**

Unintentional injuries are the leading cause of death of children from 1 to 21 years of age. Each year between 20 – 25% of all children sustain an injury sufficiently severe to require medical attention, missed school and/or bed rest. According to the CDC, “For every death caused by injury, there are approximately 34 hospitalizations, 1000 emergency department visits, many more visits to private physicians and school nurses, and an even larger number of injuries treated in the home.”<sup>1</sup>

The mortality associated with unintentional injuries is only the “tip of the iceberg” when considering the costs of these injuries. The economic costs of the non-fatal injuries includes lost parental productivity due to care for the injured child, hospital costs, long term care for the severely injured child, and lost productivity for disabled children. The savings resulting from injury prevention efforts include much more than reduced deaths.

### Prevention of Unintentional Injuries

Every unintentional injury death is potentially preventable. It is probably impossible to implement the interventions required to prevent every such death, but the review teams determined that 95% of the unintentional infant and child deaths were definitely preventable. (**Table 1, Appendix D**)

The occurrence of unintentional injuries is associated with a variety of risk factors. (A “risk factor” is some behavior, condition, or circumstance that is common when an injury occurs.) Examples of risk factors are:

1. Demographic: age, race, gender;
2. Social: socioeconomic status, supervision standards / practices;
3. Environmental: smoke alarms, pool fencing, sidewalks.

The individual level death reviews identify the presence of specific risk factors; the aggregate state data can be used to assess trends and to determine the strength of an association between a risk factor and the outcome (injury).

**Appendix C** is a framework that can be used to identify possible prevention interventions. The methodology uses three “dimensions” to define a possible intervention:

1. Target of the intervention: individual, parents;

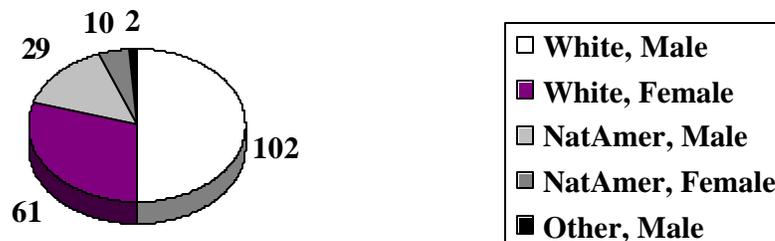
2. Type of change: behavioral, social;
3. Change mechanism: education, resource allocation.

Review teams can use the methodology to evaluate an individual death, or the state team can apply it to categories of deaths (i.e., age/cause-specific). A prevention intervention depends on the age of the child and the nature of the injury. For example, the eleven toddler (ages 1 to 4) drowning deaths would appear to be a result of inadequate supervision, although other factors may also be relevant. A possible intervention would be parental education regarding the risks and the need for close supervision of toddlers around water hazards. Older children are more mobile and less likely to be supervised, so the appropriate interventions may be environmental (pool fencing) or educational (swimming lessons).

**Table 9 (Appendix D)** presents the numbers of infant/child deaths and reviews in Montana from 1997 through 2000. Deaths due to unintentional injuries (UI) account for 204 of the 623 infant and child deaths. One hundred thirty of the 204 deaths were due to motor vehicle incidents. The distribution of all unintentional deaths by age, race, and gender is shown in **Table 10 (Appendix D)**. Almost two-thirds of the unintentional injury deaths were male, and Native Americans account for 19% of all UI deaths. **(Figure UI1)** Using the 2000 U.S. Census data as the denominator, the UI death rate over the four-year period was twice as high for Native Americans as for white children. In an independent three year study of pediatric injury-related deaths of Montana children, Rausch, Sanddal, et. al, found that Native Americans had twice the rates of fatal unintentional injuries as compared to white children, and that boys were at higher risk than girls.<sup>2</sup> In local case reviews, sixty-nine percent were males.

Eighty-seven (43%) of the 204 unintentional injury deaths of children seventeen years and younger were reviewed by local FICMR teams. Seventy-nine percent were white, sixteen percent were Native American, and sixty-nine percent were boys. The local teams determined that 73 of the 77 deaths (95%) (with adequate information to assess preventability) were definitely preventable.

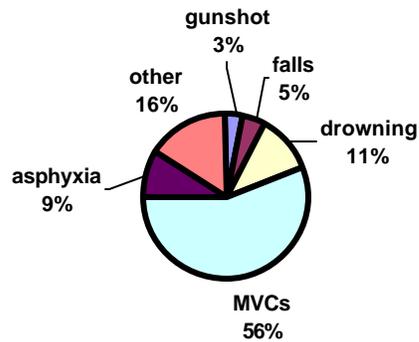
**Figure UI1. Number of All Deaths Due to Unintentional Injuries, by Race and Gender; Montana, 1997-2000**



Both nationally and in Montana, the largest proportion of pediatric injuries and deaths are due to motor vehicle crashes. Drowning has been found to be the second leading cause of injury death in children age four and younger and in older adolescent populations in Montana.

From local reviews, it was determined that 46% of the children five years and younger were not adequately supervised immediately prior to their fatal injuries.

**Montana Unintentional Injury Deaths; 1997-2000**



**Community Prevention Actions:**

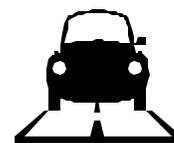
- Developed and aired a Public Service Announcement on safe gun storage and water safety
- Distributed gun locks at a local health fair
- Posted local signage indicating “dangerous water”, “no swimming” and “don’t leave children unattended”
- Recommended quality assurance for guard rail maintenance to the Department of Transportation
- Distributed child car seats and provided installation instruction
- “Zero Tolerance for Unbuckled Kids” campaign

**Community Prevention Recommendations:**

- Require helmet use for sports activities and horseback riding
- Distribute handgun safety information during well-child checks
- Bike safety instructions in middle schools

**State-wide Prevention Actions:**

- Supported graduated licensing legislation
- Administrative Rule Change which requires CPR for all licensed day care providers



1997 – 2000 (ages 0 – 17)	
- Cases Reviewed	10
- Montana Drowning Deaths	21

FICMR Teams Reviewed 47% of Montana Drowning Deaths

## DROWNING

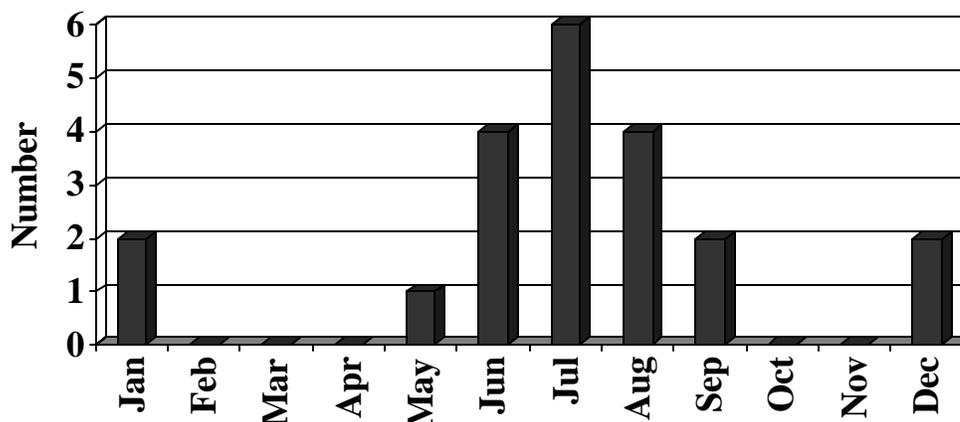
**7 of 10 children who drowned were not adequately supervised**

Drowning has been defined as a death resulting from suffocation within 24 hours of submersion in water. Victims of near drowning survive for at least 24 hours.<sup>1</sup> Drowning and near drowning are major causes of childhood mortality and morbidity from injury. Studies have shown that children under one year drown most often in bathtubs and buckets, children from 1 to 4 drown in swimming pools, and older children age 5 to 19 years most frequently drown in lakes, ponds, rivers and pools.<sup>1</sup> Ten of the 21 drowning deaths (ages 0 – 17) that occurred in Montana from 1997 – 2000 were reviewed. Twelve of the 21 deaths were male, and seven of the ten reviewed deaths were male. Four of the reviewed deaths occurred in swimming pools and four in natural bodies of water.

Drowning deaths are concentrated in the summer months, with 14 of the 21 deaths occurring in June through August. **(Figure D1)** Over half (11 of 21) of drowning victims are toddlers ages 1 to 4. Constant, close supervision of infants and toddlers around water is necessary to prevent drowning and near drowning. Even a brief lapse of supervision can have tragic results. The American Academy of Pediatrics has advocated “touch supervision” which requires the caregiver to be within an arm’s reach or able to touch the swimmer at all times.<sup>2</sup> The local review teams determined that seven of the ten children (whose drowning deaths were reviewed) were not adequately supervised at the time of the event. Supervision adequacy was not known, or not noted, for two additional deaths.



Figure D1. Drowning Deaths by Month of Occurrence; Montana, 1997-2000



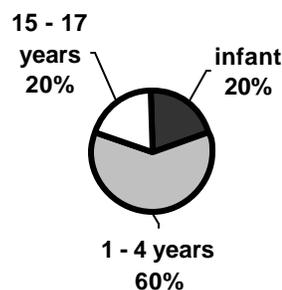
### Adolescents

In the United States, drowning is the second leading cause of unintentional death in those under age 20 years. Several risk factors are associated with adolescent drowning.<sup>3</sup>

- An increase in risk-taking behavior
- Failure to use life vests while swimming and boating
- Combining water activities with alcohol

All of the drowning deaths reviewed by local teams were found to be preventable.

All Montana Drowning Deaths, by Age; 1997-2000



### Community Prevention Actions:

- Aired Public Safety Announcements on water safety which included caution for bath tubs, pools, ditches, buckets and toilets
- Included water safety instruction in baby sitting classes

## **Community Prevention Recommendations:**

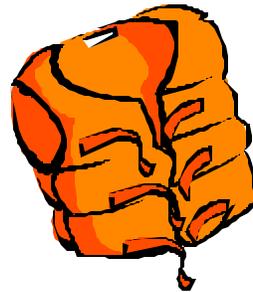
- Air filled swimming pools be drained completely when not in use

## **State-wide Prevention Actions:**

- Administrative rule change: required CPR training for all day care providers
- Have recommended a change of Administrative Rule that would require control of public access to privately owned public indoor pools

## **State-wide Prevention Recommendations:**

- Self-locking gates where there is a pool
- Locked covers for all hot tubs
- Children should be supervised around water and wear well-fitting Coast Guard approved life jackets
- CPR training for all parents and others caring for children



1997 – 2000 (Ages 0-17)  
 - Cases Reviewed 48  
 - Montana MVA Deaths 130

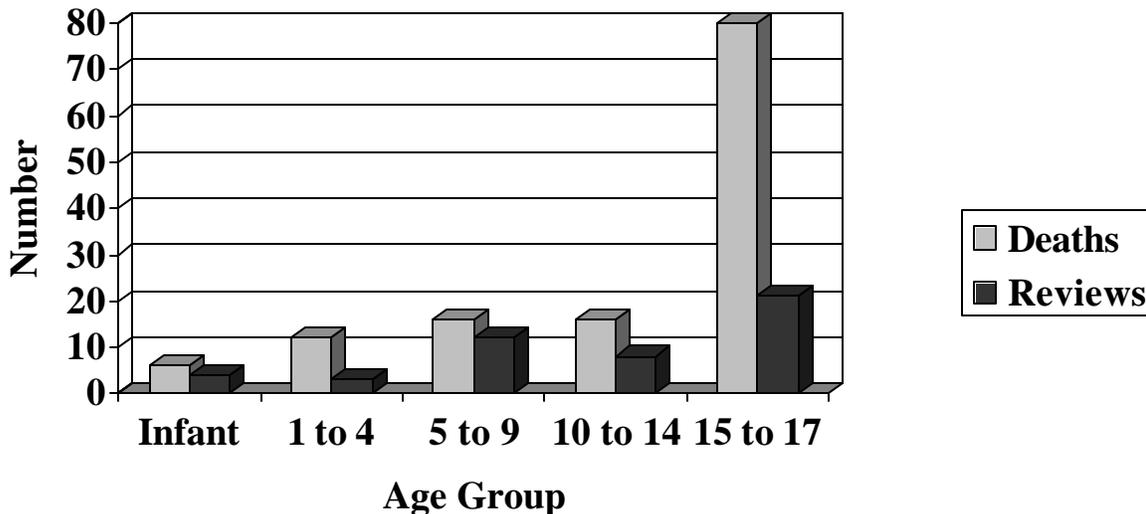
FICMR Teams Reviewed 37% of Montana MVC Deaths

## MOTOR VEHICLE CRASHES

Local FICMR teams determined that 94% of deaths by MVC were definitely preventable

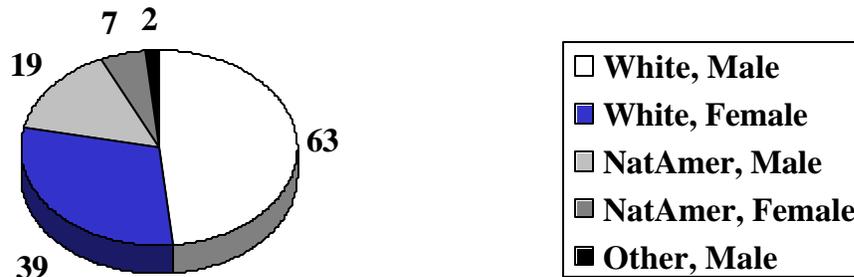
Motor vehicle crashes are the leading cause of injury and death for Montana children age 1 through 17 years. In Montana Kids Count data for 1997, it was reported that one child was killed and an additional 90 children were injured every month in a car crash.<sup>1</sup> Local FICMR teams reviewed 48 (37%) of the 130 pediatric motor vehicle injury fatalities that occurred between 1997 and 2000. (**Figure MV1**) Over 60% of the MV deaths were teens ages 15 to 17.

Figure MV1. Motor Vehicle Deaths and Reviews, Montana, 1997-2000, by Age



Gender also plays an important role in all motor vehicle crash (MVC) injury types. Male drivers are more likely to be involved in motor vehicle crashes than females. Almost 65% of all infant/child motor vehicle deaths (1997-2000) were males. **(Figure MV2)** The Montana Traffic Safety Bureau reports that males are involved in over 60% of all crashes, and account for 60 – 70% of the fatalities. The death rate for teenage male drivers is often more than twice the rate for teen female drivers.<sup>2</sup> Sixty-two percent of the cases reviewed by FICMR teams were male, and 38% female.

Figure MV2. All Motor Vehicle Deaths, by Race and Gender; Montana, 1997-2000



Fatal motor vehicle occupant injury rates are three times higher for Native American and Alaska Natives than for white and black children, and pedestrian-motor vehicle collision death rates are nearly 4 times that for all races combined.<sup>3</sup> Twenty-six of the 130 Montana MV child deaths (20%) were Native Americans. **(Table 11, Appendix D)** The Montana motor vehicle death rate for Native Americans ages 0 to 17 over the four-year period was 2.27 times the rate for white children.



## Child by Role in Crash

Pedestrian fatalities are the second-leading cause of motor vehicle-related deaths, following occupant fatalities.<sup>4</sup> Nationally, pedestrian-related fatalities account for about 13% of all motor vehicle-related accidents, and in Montana 7%. Children are at risk for pedestrian injuries and fatalities, especially those aged 4 – 14 years.<sup>5</sup> Of the five pedestrian-related deaths reviewed, four were aged 7 years and younger.

### **Child by Role in Crash (Cases Reviewed); Montana, 1997-2000**

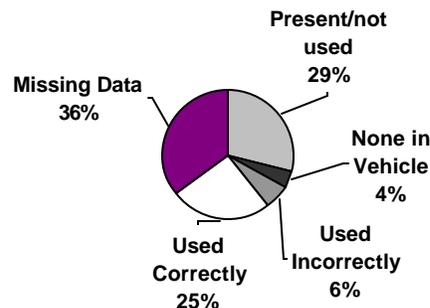
<b>POSITION OF CHILD</b>	<b>NUMBER OF CASES REVIEWED</b>
<b>Driver</b>	<b>9</b>
<b>Pedestrian</b>	<b>5</b>
<b>Passenger</b>	<b>27</b>
<b>Bicycle</b>	<b>5</b>
<b>Missing</b>	<b>2</b>

## Safety Restraints

Using safety restraints and age-appropriate car seats help to reduce injury and death.

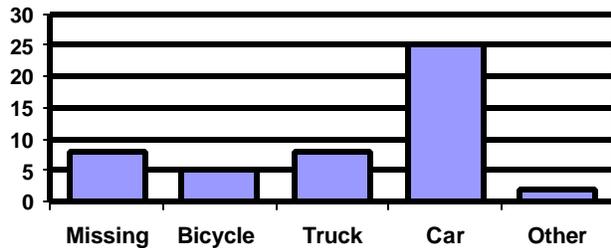
Montana's law requires all belted positions in a vehicle to use the supplied seat belts, unless a medical or employment exemption is in hand. Children up to twelve years of age should ride in back; these children and small-stature adults should also ride in back when there are air bags in the vehicle.<sup>6</sup>

**Restraint Used (Cases Reviewed); Montana, 1997-2000**



Nearly 20% of high school students report they rarely or never wear safety belts when riding with someone else.<sup>7</sup> In Montana, male high school students (38.7%) are more likely than female students (24.5%) to rarely or never wear safety belts.<sup>1</sup> There were 31 MV death reviews with information about restraint use. Twelve of the 31 reviews stated that the restraint was "Used Correctly", and 14 said the restraint was "Present, not Used".

**Type of Vehicle (Cases Reviewed);  
Montana, 1997-2000**



Bicyclist injuries tend to be concentrated in the ages from 5-19. The 10-14 year old age group remains the highest casualty group. Of the five cases of fatal bicycle accidents reviewed, four were 11 years of age or younger.

## Alcohol/Drug Use

Alcohol intoxication contributes significantly to the high rate of adolescent motor vehicle collisions and fatalities. Nationally, alcohol is involved in 42% of fatal adolescent motor vehicle crashes. Since 1996, the average rate in Montana is approximately 35%.<sup>2,5</sup> According to the Traffic Safety Bureau, young Montana drivers have responded more to the drinking and driving problem than has the general population. In crashes involving alcohol, 6.2% are young drivers and 9.9% are drivers of all ages. There is some concern however, that there has been an upward trend during the last four years.<sup>5</sup>

Local FICMR teams have lacked adequate information to clearly document the association between teen drivers, alcohol use and fatal motor vehicle accidents. Accident reports have often not always been available at the time of review, and therefore these questions have often not been answered.

## Causes

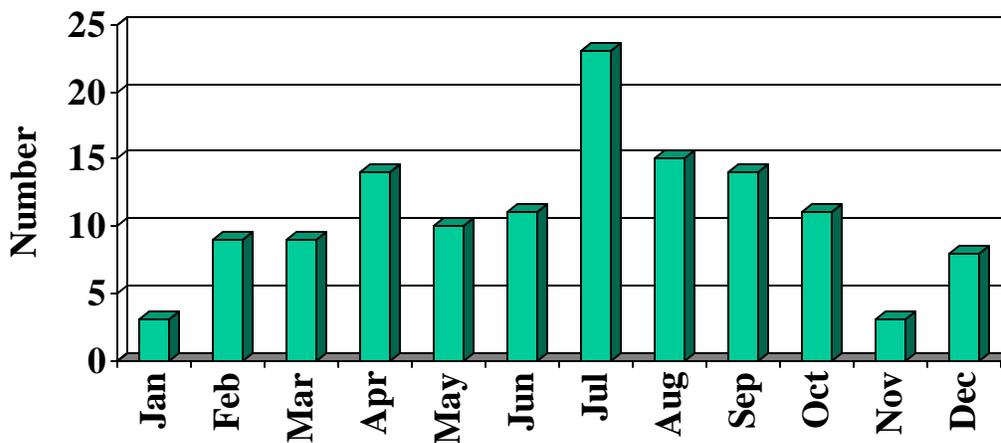
Inexperience with driving skills is the number one cause of accidents contributing to the high rate of motor vehicle crashes in adolescents. The risk of a collision is greatest during the first two years of driving. Teenage drivers are more likely to speed, make illegal turns, run red lights, ride with an intoxicated driver, and drive after using alcohol or drugs. Teenagers are more likely than older drivers to underestimate the dangers in hazardous situations, and they have less experience coping with such situations.<sup>2</sup>

**Age of the driver at fault:** One third of the drivers at fault were eighteen years or younger. Driver error, including speeding and recklessness, were reported in 87.5% of those cases.

There does appear to be some seasonality to child motor vehicle (MV) deaths in Montana. Forty-nine of the 130 deaths (38%) occurred during the summer months (June, July, and August). (**Figure MV3**) There were only a total of 23 deaths during the four months of November through February (an average of 6 deaths per month – over a four-year period – compared to the 16 per month in the summer). The summer increase is probably related to miles driven (youth have more free time during the summer), and it is difficult to determine the effect of winter road conditions on teen accidents and deaths. Five of the reviews indicated that the roads were icy or snowy.

Ninety-four percent of the fatal motor vehicle crashes reviewed for the years 1997-2000 were found to be definitely preventable

Figure MV3. Number of Motor Vehicle Deaths, by Month, Ages < 18; Montana, 1997-2000



### Community Prevention Actions:

- Requested that the Department of Transportation Engineering Division provide quality assurance for appropriate guardrail heights after paving projects
- Removed a bush blocking visibility at a dangerous intersection
- Initiated “Zero Tolerance for Unbuckled Kids” campaign
- Multi-county campaigns for car seat and bike helmet distribution
- Incorporated car seat and seat belt safety instruction into childbirth preparation classes
- Spot checks for car seat use at health fairs
- Bike safety in-services at middle school
- Local traffic safety video produced

## **Community Prevention Recommendations:**

- Recommendation for improved road sanding
- Recommendations for a system in which students and volunteers would monitor students for seatbelt use, and emphasis on appropriate safety restraints in driver's education classes
- Increased education in schools regarding the hazards of drinking and driving
- Better lighting in parking lots and education regarding the need to wear reflective clothing at night
- Bicycle safety courses and more bike trails
- Lower speed limits on secondary roads
- Requiring a defensive driving class after each driving offense
- Widen shoulders on secondary roads

## **State-wide Prevention Initiatives:**

- Encouraged the support of legislation for graduated licensing for minors



1997 – 2000 (Ages 0-17)

- Cases Reviewed 12  
- Montana Homicide Deaths 19

FICMR Teams Reviewed 63% of Montana Homicide Deaths

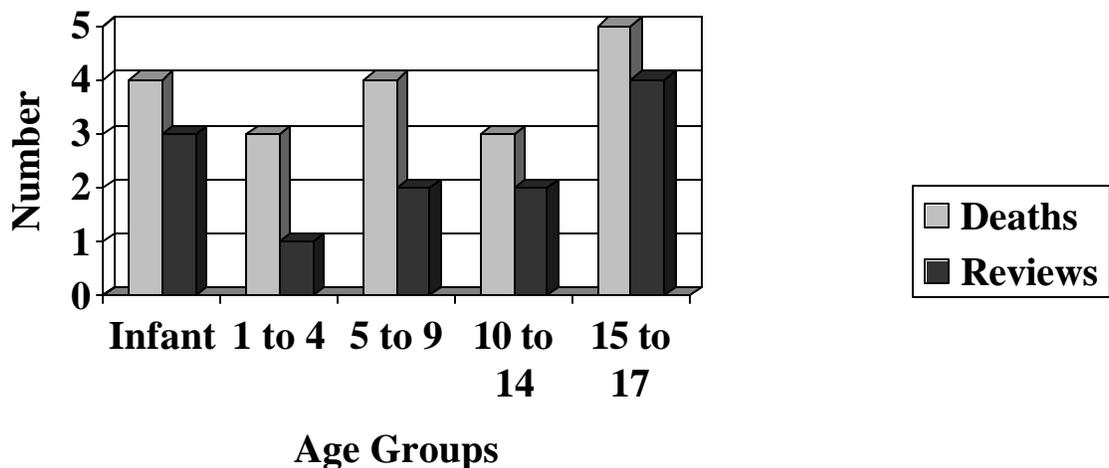
## HOMICIDE

Ten of the 19 child homicides were committed with a firearm.

Homicide ranks fourth among the leading causes of death in children younger than 4 years and third among children aged 10 to 14 years. Though deaths of children aged 14 and younger declined from 1989 to 1996 nationally, the pediatric homicide rate remained stable.<sup>1</sup>

The child homicides in Montana were distributed across all of the age groups. (**Figure H1**) Four infants were homicide victims, and they were all Caucasian race. There were three Native American children killed by homicide, and the youngest was five years of age. (The Montana death certificate data includes among the child homicides two deaths that were coded as “assault by motor vehicle”. These two deaths were reviewed and coded as “MVA” [motor vehicle accident], but the manner of death was identified as homicide. Those two reviews were included in this report as MV crashes.)

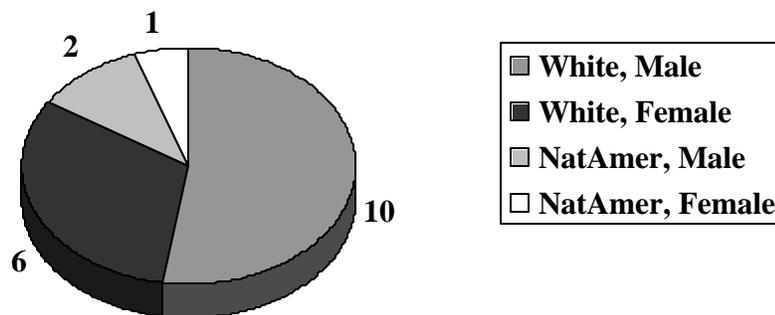
Figure H1. Homicide Deaths and Reviews, Montana, 1997-2000



Males have a higher risk of homicide than females, and male adolescents are five times more likely to die of homicide than females.<sup>2</sup> There were no female homicide victims over the age of six in Montana from 1997 through 2000.

Homicides occur disproportionately among Native Americans, with rates at about twice that of national rates.<sup>3</sup> Three of the 19 child homicides in Montana were Native American. (Figure H2)

Figure H2. Homicide by Race, Gender  
(Cases Reviewed); Montana, 1997-2000



### Firearms

Access to firearms is the single greatest risk factor for homicide. Adolescents often have easy access to firearms. A survey of rural and suburban youth showed that 48% of male teens owned a gun and 11% of eighth grade urban students owned guns. The CDC reported that 20% of Montana youth were likely to have carried a firearm in the last month. Nationally, twenty-eight percent of families who receive care in pediatric clinics keep guns in the home. In 39% of these homes, the guns are unlocked, loaded or both. Presence of a gun in the home is associated with a 3 to 4 fold increase in the risk of adolescent homicide.<sup>2,44</sup>

Teen homicides largely are assumed to be related to crime, gang activity, or premeditated assault. Actually, the majority of firearm homicides are impulsive acts by friends or relatives. The most common event precipitating a shooting is an argument, often over something later seen as trivial.<sup>5</sup>

Death certificate information identified ten of the 19 Montana child homicides as being committed with a firearm. The fatality review provides information on the firearm and circumstances that are not available in the death certificate.

## Homicide Mechanism of Death (Cases Reviewed) Montana, 1997 - 2000

MECHANISM OF DEATH	NUMBER OF CASES
Gunshot wound	6*
Blunt force trauma to head	2
Shaken Baby Syndrome	2
Poisoning	1
Assault by drowning	1

Age of person handling the firearm	
< 18 years	4
adult	1
unknown	1

67% of homicides reviewed reported evidence of previous use of community agencies including:

<b>Law enforcement</b>	<b>3</b>
<b>Domestic violence</b>	<b>2</b>
<b>Public health</b>	<b>4</b>
<b>Other</b>	<b>5</b>

42% had a history of prior abuse/neglect.

42% had prior DFS involvement.

One hundred percent of the homicides were determined preventable by the local review teams.

### Community Prevention Actions:

- Formation of a Block Parent Program and Neighborhood Watch
- Produced and aired a PSA regarding gun safety
- Initiated "Never Shake a Baby" prevention program
- Submitted a letter to OB/GYN's and Pediatricians requesting the addition of "discharge educators". Upon hospital discharge require that all parents watch the video "Baby your Baby" and distribute the video upon request

### State-wide Prevention Actions:

- None at this time

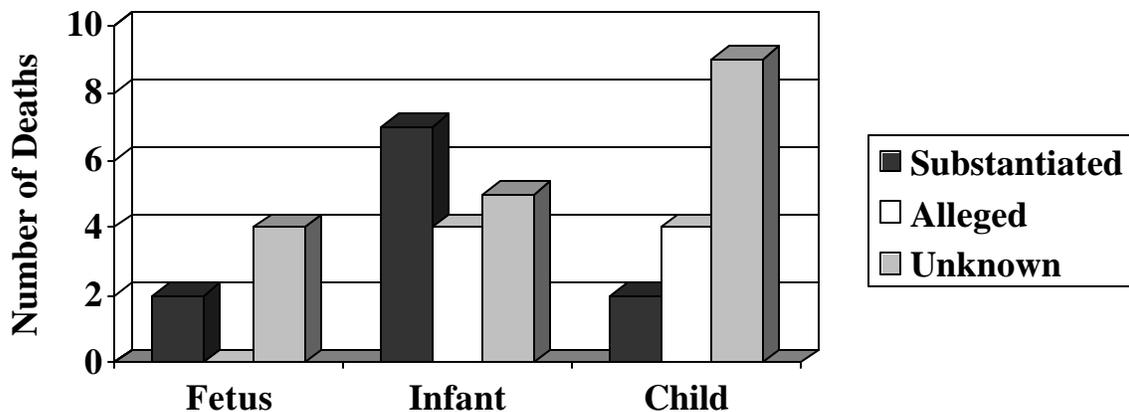
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## IDENTIFIED CHILD ABUSE and/or NEGLECT

Eight of the 11 substantiated abuse cases were Native American

The FIC review teams identified evidence of prior abuse for 37 deaths during the three years 1998 through 2000. (No cases reviewed in 1997 identified prior abuse.) The abuse was substantiated for eleven deaths, only alleged for another eight, and there was no information regarding the abuse allegation for the remaining 18 deaths. **Figure CA1** shows the distribution of abuse findings by age category. The numbers are small, but infant abuse allegations appear to be more likely to be substantiated (7/16) than allegations for children (2/15).

**Figure CA1. Status of Prior Abuse (Cases Reviewed); Montana, 1998-2000**



Approximately 17 % of the Fetal Infant Children deaths in Montana were Native American, and 15 % of the reviews were of Native Americans. However, 45 % of the reviewed deaths with identified prior abuse were Native American. **(Table 12, Appendix D)** The Native American is five times more likely than the white to have prior abuse identified by the review team. Eight of the 11 substantiated abuse cases were Native American.

1997 – 2000 (ages 0 – 17)  
 - Cases Reviewed 17  
 - Montana Suicides 38

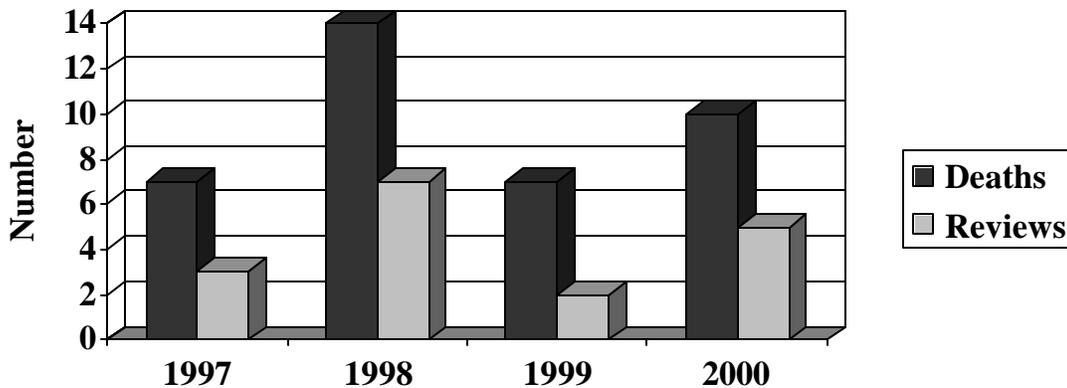
FICMR Teams Reviewed 45 % of Montana  
 Suicide Deaths

## SUICIDE

Montana had twice as many suicides as homicides

Any child death is a tragedy, but a child or adolescent suicide seems especially tragic. Family, friends, and the community view a suicide as a truly senseless death, and the sense of loss and feeling of guilt (“Why didn’t I see this coming and do something?”) can devastate close associates of the victim. Montana had twice as many suicides during the four years as homicides in the population of children under the age of 18. Only 17 of these suicides were reviewed. (**Figure S1**) A review of all child/adolescent suicides in Montana would provide valuable information for understanding and developing prevention strategies.

Figure S1. Suicide Deaths and Reviews, Montana, 1997-2000



Montana adolescent males were almost nine times more likely to commit suicide than were females, and the gender difference appears to hold across the two major racial groups. (**Table 13, Appendix D**) Twenty-nine of the victims were white males, and five were Native American males. Only four females were reported as committing suicide over the four-year period. (All four female suicides were in 1997-8, and all four were by hanging. In general, females are less likely than a male to attempt suicide with a firearm, and, as a result, female attempts are less likely to be successful.)

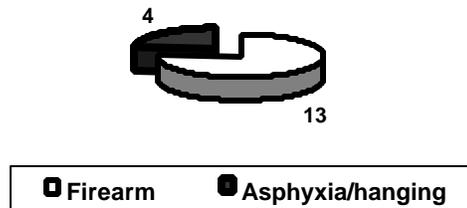
Guns are a very lethal method of attempting suicide. The presence of a firearm in the home increases the risk of suicide among teens tenfold.<sup>1</sup>

This is a significant risk as the majority of homes in Montana have some type of firearm, giving adolescents easy access to a lethal means of suicide.

Of the suicide cases reviewed, 53% had accessed services through community agencies and 6 out of 17 children had been involved with law enforcement. Twenty-three percent had attended hunter or gun safety classes. Information concerning the

availability of firearms was provided for in 12 of the 17 cases reviewed (71%). Of these 12, weapons and ammunition were readily available in 7 instances (59%). Both handguns and long guns contribute to the risk of youth suicide.

**Montana Suicide Method (Cases Reviewed); 1997-2000**



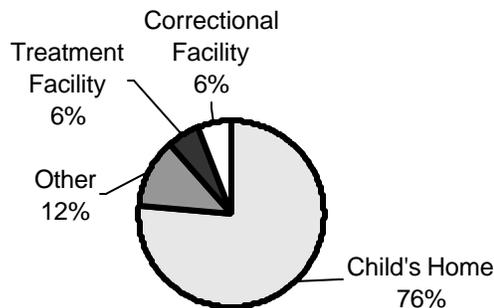
**Montana Suicide History (Cases Reviewed), 1997- 2000**

- **Prior attempts** 12%
- **Prior mental health services** 41%
- **Possible cluster** 12%
- **Domestic abuse** 6%

Services provided to the children prior to their deaths included: mental health counseling, emergency shelter, foster care, youth court, children’s corrections and health care. In four of the cases Child and Family Services had been involved.

Consistent with national data, FICMR teams found that ¾ of the reviewed suicide deaths occurred in the home.

**Place of Injury/Death (Cases Reviewed); Montana, 1997-2000**



Philosophically, all suicide, particularly among youth should be preventable. However, the causes of suicide are complex and the unpredictable nature of children and adolescents to even simple stressors may make this an admirable but unrealistic expectation. However, when the FICMR teams examined the events leading up to each suicide, the teams determined that 70% of the deaths were preventable.

### **Community Prevention Actions:**

- Public Service Announcements and public education programs regarding safe gun storage
- Workshops for students and teachers regarding warning signs of depression and suicide prevention
- Gatekeeper training programs
- “Yellow Ribbon” campaigns

### **State-wide Prevention Actions:**

- The Department of Public Health and Human Services convened Montana’s Suicide Prevention Task Force. A Strategic Suicide Prevention Plan was developed

### **State-wide Prevention Recommendations:**

- Providers should counsel families of high-risk youth about removing access to lethal means in and around the home, including prudent firearm storage
- Public Health Nurses should include an assessment of the presence of firearms in the home, and education regarding safe storage of weapons and firearms
- Providers and Public Health Nurses should become familiar with local and state resources for helping suicidal adolescents
- Providers should screen adolescents for risk of suicide at all routine exams and ask if a firearm is present in the home
- Support the recommendations and implementation strategies contained in the Montana Strategic Suicide Prevention Plan
- Support the implementation of “follow-back” studies that will provide additional information on risk factors associated with each death



1997 – 2000 (ages 0 – 17)	
- Cases Reviewed	22
- Firearm Death	48



## FIREARM DEATHS

**Every year twelve Montana children die as a result of firearm incidents**

Firearms were an integral component of the Western frontier culture. Guns were used for hunting food and predators, and for individual and family protection. Although these historical needs have almost disappeared, private ownership of firearms is still common. Twenty-eight percent of families who receive care in pediatric clinics keep guns in the home. In 39% of these homes the guns are unlocked, loaded or both.<sup>2,8</sup>

Every year twelve Montana children die as a result of firearm incidents. **(Table 14, Appendix D)** The victims of firearm deaths are usually white males. Forty of the forty-eight deaths from 1997 through 2000 were white males. Six of the deceased children were Native American males (four of whom were suicide victims), and two white females were homicide victims.

Over half of all Montana firearm deaths were reported to be suicides. **(Figure FA1)** There were no reported firearm suicides for females over the four-year period. The suicides are distributed over the teenage years **(Figure FA2)**, with 12 suicides (with firearms) among 12 to 14 year olds and 14 within the 15 to 17 age group.

Figure FA1. Firearm Deaths, by Manner of Death,  
Montana, 1997-2000

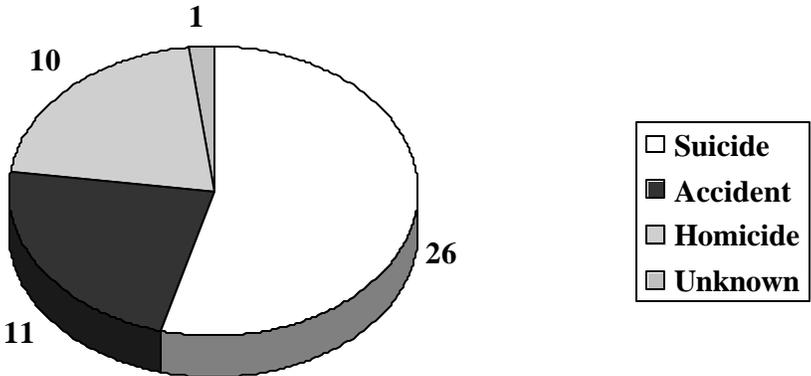
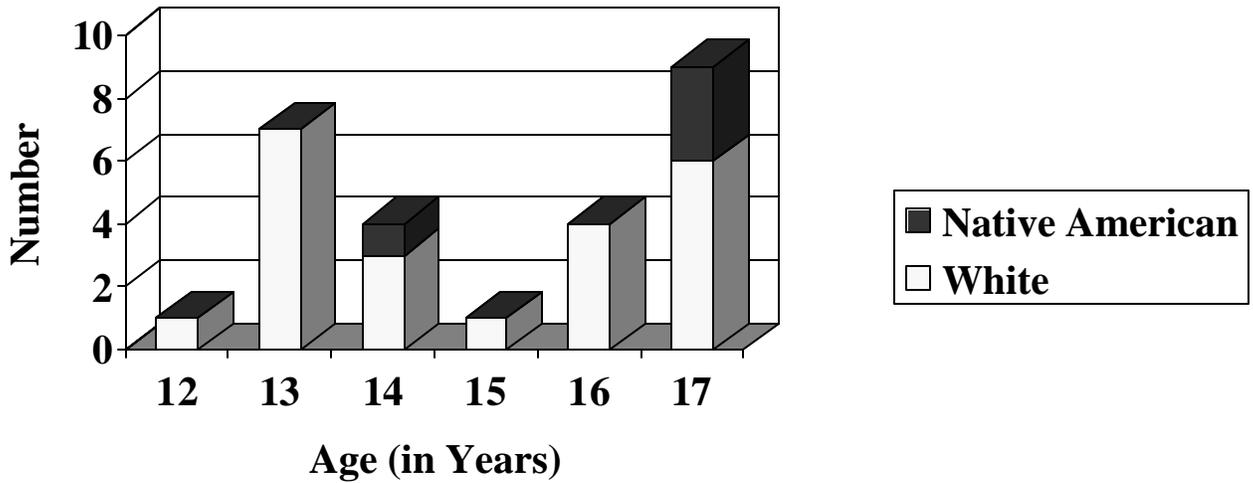


Figure FA2. Firearm Suicide Deaths,  
by Age and Race; Montana, 1997-2000



Fatality reviews were submitted for 22 of the 48 firearm deaths. Using manner of death as determined from the death certificate, four accidental deaths were reviewed, 13 suicides, and 5 homicides. A handgun was used in seven of the suicides, and a rifle was used for another five (weapon was not identified for one suicide). Handguns were also involved in two of the accidental deaths and three homicides. Six of the decedents were reported as having attended a firearm safety class, but information on classes was missing on 13 (of the 22) reviewed deaths. The firearm was not in a locked cabinet for 17 of the fatal incidents, and alcohol or drugs was identified as a factor in four of the deaths.

# ACCOMPLISHMENTS

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## Number of Deaths Reviewed

Currently 28 community level teams are reviewing cases for 43 counties and 5 reservations. Over ninety percent of the Montana fetal, infant and child deaths have the potential for review.

## The State FICMR Team and Local Coordinator's Network

The successful development of the state team, and the local coordinator's network have been significant milestones in building a successful infrastructure for the Montana FICMR project. The interaction and interface of the activities of these two groups has been growing in significance, and could ultimately prove to be one of the project's greatest and most valuable strengths.

## Prevention Initiatives

Local teams have used information from reviews to implement targeted prevention programs to address:

SIDS	"Shaken Baby Syndrome"
Drowning and Water Safety	Road Hazards
Infant/Child Safety Seats	Firearm Safety
Bike Safety	Suicide
Prenatal Health	Driving Safety
Abuse & Neglect	Substance Abuse

Counties have been creative in utilizing private, state and local resources to institute prevention initiatives. Local FICMR coordinators have also shared materials, ideas and inspiration.

## The First Report of Local Review Findings

This document is the first thorough analysis and reporting of Montana's fetal, infant and child mortality review findings. It provides valuable local, regional and statewide information that may assist with future health and safety policy recommendations. It represents the dedication, commitment and countless hours of work of local and tribal review teams throughout Montana.

# CHALLENGES

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## **FICMR Data Analysis**

Building local and state MCH data capacity and enabling the preparation, publication and dissemination of reports and findings is fundamental to the mortality review process, and to core public health objectives. Thus far, establishing a reliable, working data system has been the most difficult challenge of this program. A focus for the future needs to be refining the current system so that review data will be more readily accessible to the counties and state policy makers.

## **Access to Information**

One hundred percent review of all Montana's infant and child deaths remains an illusive goal. Access to information has been problematic for deaths that have occurred out of the county of residence or out of state. Adequate details for local case reviews have not been available. Continued efforts need to be made with neighboring state's mortality review programs and state offices of vital statistics, so that key case information will be available.

## **Sustainable Funding for FICMR**

The commitment to the FICMR process in Montana has demonstratively grown over the course of several years, and will continue to help sustain the program. The FICMR program cannot be sustained with validity lacking an adequate and reliable source of funding. Critical planning for the future must include effective strategies for seeking resources to support the FICMR program.

## **Increased Prevention Efforts**

Efforts in the first years of FICMR have been focused on building program infrastructure and establishing a statewide network of review teams. Local teams have had to construct teams and learn the complexities of the review process. The State FICMR team has worked through policy and programmatic issues. Though much time has been invested in building the foundation for FICMR, the goal of prevention has not been lost. Many prevention activities have been accomplished locally and at the state level. With much of the work of program development behind, the focus of Montana FICMR must shift to prevention. The state, counties and tribes must continue to work together through FICMR to realize the goal of decreasing the numbers of preventable deaths of infants and children.

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## **SIDS**

<sup>1</sup> American Academy of Pediatric Policy Statement. Volume 92, #2. August 1993. 292-294

<sup>2</sup> Child Deaths in Michigan; Michigan Child Death State Advisory Team. Second Annual Report 1996-1999, 44-48.

<sup>3</sup> Moon, R., Patel, K., and McDermott Shafer, D. (2000). Sudden Infant Death Syndrome in Child Care Settings. Pediatrics 106 (2), 295-300.

## **UNINTENTIONAL INJURIES**

<sup>1</sup>Centers for Disease Control: National Center for Injury Prevention and Control, Childhood Injury Fact Sheet, July 1999 [www.cdc.gov/ncipc/factsheets/childh.htm](http://www.cdc.gov/ncipc/factsheets/childh.htm)

<sup>2</sup>Rausch, T., Sanddal, N., Sanddal, T., Esposito, T. ; Changing Epidemiology of Injury-Related Pediatric Mortality in a Rural State: Implications for Injury Control. (1998) 388-392

## **DROWNING**

<sup>1</sup>American Academy of Pediatric Policy Statement. Volume 92, #2. August 1993. 292-294

<sup>2</sup>American Academy of Pediatric Policy Statement. Volume 105, #4. April 2000. 868-870

<sup>3</sup>Centers for Disease Control: National Center for Injury Prevention and Control, Ten Leading Causes of Death, United States 1993-1995. (2000) [www.cdc.gov/ncipc/osp/leadcaus](http://www.cdc.gov/ncipc/osp/leadcaus)

## **MOTOR VEHICLE ACCIDENTS**

<sup>1</sup>Montana Kids Count. A Report on Traffic Safety and Montana's Children (1999) 1-8

<sup>2</sup>McIntosh, G., Moreno, M. Fatal Injuries in Adolescents. State Medical Society of Wisconsin (2000) [www.wismed.org/wmj/dec2000/fatalinjuries](http://www.wismed.org/wmj/dec2000/fatalinjuries)

<sup>3</sup>American Academy of Pediatrics Policy Statement. Volume 104, #6. December 1999, 1397-1399

<sup>4</sup>Centers for Disease Control: National Center for Injury Prevention and Control, Pedestrian Injury Prevention. [www.cdc.gov/ncipc/factsheets/pedes](http://www.cdc.gov/ncipc/factsheets/pedes)

<sup>5</sup>Montana Department of Transportation. Traffic Safety Bureau. Traffic Safety Problem Identification FY2000 [www.mdt.state.mt.us](http://www.mdt.state.mt.us)

<sup>6</sup>Montana Department of Transportation. Traffic Safety Bureau. Topics. [www.mdt.state.mt.us/departments/engineering/trafsafety](http://www.mdt.state.mt.us/departments/engineering/trafsafety)

<sup>7</sup>Centers for Disease Control: National Center for Injury Prevention and Control, Motor Vehicle-related Crashes Among Teenagers. [www.cdc.gov/ncipc/factsheets/teenmvh](http://www.cdc.gov/ncipc/factsheets/teenmvh)

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## HOMICIDE

<sup>1</sup> American Academy of Pediatrics Policy Statement. Volume 104, #5. November 1999. 1158-1160

<sup>2</sup> McIntosh, G., Moreno, M. Fatal Injuries in Adolescents. State Medical Society of Wisconsin (2000)  
[www.wismed.org/wmj/dec2000/fatalinjuries](http://www.wismed.org/wmj/dec2000/fatalinjuries)

<sup>3</sup> Centers for Disease Control: National Center for Injury Prevention and Control, Homicide and Suicide Among Native Americans 1979-1992, Violence Surveillance Summary, Series No. 2

<sup>4</sup> Centers for Disease Control. Montana. These Leading Causes of Death Result From These Behaviors.  
[www.cdc.gov/nccdphp/dash/yrbs/pies99/mt](http://www.cdc.gov/nccdphp/dash/yrbs/pies99/mt)

<sup>5</sup> American Academy of Pediatrics Policy Statement, Volume 89, #4. April Part 2, 1992, 784-787

## SUICIDE

<sup>1</sup> McIntosh, G., Moreno, M. Fatal Injuries in Adolescents. State Medical Society of Wisconsin (2000)  
[www.wismed.org/wmj/dec2000/fatalinjuries](http://www.wismed.org/wmj/dec2000/fatalinjuries)

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**Appendix A**  
**Summary by County**  
**Fetal, Infant, and Child Deaths and Mortality Reviews**  
**Montana, 1997 - 2000**

# Table A1

Total FIC Deaths, by County, by Year

<u>County</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>Total</u>
Beaverhead	2	3	3	4	12
Big Horn	7	5	7	9	28
Blaine	1	5	4	4	14
Broadwater	2	2	1	0	5
Carbon	2	5	2	1	10
Cascade	18	24	23	27	92
Chouteau	2	0	1	1	4
Custer	1	2	2	4	9
Daniels	1	0	0	0	1
Dawson	1	1	2	2	6
Deer Lodge	5	3	2	1	11
Fallon	0	1	0	0	1
Fergus	2	3	3	8	16
Flathead	20	19	18	14	71
Gallatin	7	11	4	17	39
Garfield	0	1	0	0	1
Glacier	8	8	9	5	30
Granite	0	0	1	1	2
Hill	5	8	6	5	24
Jefferson	3	0	1	1	5
Judith Basin	0	3	0	0	3
Lake	6	11	11	9	37
Lewis and Clark	7	20	16	6	49
Liberty	1	0	1	0	2
Lincoln	4	5	5	5	19
Madison	3	2	1	2	8
Meagher	1	2	0	2	5
Mineral	0	0	3	1	4
Missoula	17	14	15	24	70
Musselshell	4	2	2	3	11
Park	4	1	5	5	15
Petroleum	1	0	0	0	1
Phillips	1	1	3	0	5
Pondera	2	2	2	2	8
Powder River	2	2	0	0	4
Powell	1	0	2	0	3
Prairie	0	0	0	1	1
Ravalli	5	5	4	6	20
Richland	1	1	2	3	7
Roosevelt	6	2	6	3	17
Rosebud	7	3	5	8	23
Sanders	3	1	1	2	7
Sheridan	0	4	0	0	4
Silver Bow	7	7	5	4	23
Stillwater	1	2	2	1	6
Sweetgrass	0	0	0	3	3
Teton	2	2	1	0	5
Toole	1	0	1	2	4
Valley	4	2	4	0	10
Wheatland	2	0	0	1	3
Yellowstone	30	30	25	22	107

## Table A2

All Fetal, Infant, and Child Death Reviews, Montana, 1997 - 2000

<u>County</u>	<b>By Review Co.</b>				<b>By Residence Co.</b>			
	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
Big Horn	0	0	4	9	0	0	3	9
Cascade	10	20	21	21	8	20	20	21
Chouteau	0	0	0	0	1	0	1	0
Custer	0	2	1	0	0	2	1	0
Flathead	0	20	18	13	0	16	17	13
Gallatin	3	4	2	16	3	4	2	15
Glacier	0	0	0	0	1	0	0	0
Hill	0	0	0	2	0	0	0	2
Lake	0	4	10	7	0	6	10	7
Lewis and Clar	7	17	15	6	7	17	14	6
Lincoln	0	0	0	0	0	1	1	0
Mineral	0	0	0	2	0	0	0	1
Missoula	18	12	16	22	18	12	16	22
Musselshell	0	0	0	0	1	0	0	0
Park	0	0	4	5	0	0	4	5
Ravalli	0	0	1	4	0	0	1	4
Richland	0	0	0	1	0	0	0	1
Roosevelt	0	2	7	3	0	2	7	3
Rosebud	0	0	0	9	0	0	1	10
Sanders	1	1	1	2	1	1	1	2
Silver Bow	1	0	2	2	1	0	2	2
Yellowstone	29	25	14	11	28	25	14	11
Missing						1	1	1
Totals	69	107	116	135	69	107	116	135

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## **Appendix B. Regional Summary**

The 56 Montana counties are assigned to five health planning regions. The population is not evenly divided among the regions, and the Eastern Region has one-half the population of each of the other four regions. (Table B1) The total number of deaths and the number of reviews by region are shown in Figure B1. Total deaths over the four-year period range from 89 (East) to 228 (NW), with approximately 180 deaths in each of the other three regions. The proportion of deaths that were reviewed also varied by region from 30% to 65%. (Figure B2)

The ratio of total deaths over the four-year period divided by the Census 2000 population for ages less than 18 was calculated as an estimate of a FIC death rate (deaths per 1,000 population over a four-year period). The North Central Region has the highest ratio. The two western regions have the lowest overall death ratios and the lowest race-specific ratios. In general, the Native American child population is at a higher risk of death than the white population in all regions.

The Native American infant population also appears to be at higher risk in all regions. (Table B2) The ratio of Native American IMR to white IMR for the state is 1.9, indicating that a Native American baby is almost twice as likely as a white baby to die in the first year of life.

The North West Region had a higher proportion of all FIC deaths reviewed (65.8%) than any other region. (Table B3) The Region reviewed 71% of fetal deaths and 64% of child deaths; both are 20% greater than the state average for the age group. The East Region was 19 percentage points below the overall state FIC review rate.

The distribution of deaths by manner of death did not vary significantly by region. (Table B4) About 55% of all child (ages 1 to 17) deaths are due to accidental causes, and more than 80% of the infant deaths are due to natural causes.

**Table B1**  
Region Summary

<b>Population, Ages &lt; 18</b>					
	<u>Total</u>	<u>White</u>	<u>Native American</u>	<u>Percent Non-White</u>	<u>Percent NatAmer</u>
Eastern	22,204	16,848	4,605	24.1	20.7
North Central	39,810	29,735	7,860	25.3	19.7
South Central	48,416	40,659	4,886	16.0	10.1
South Western	53,610	50,370	1,015	6.0	1.9
North Western	66,022	59,087	3,716	10.5	5.6
Total	230,062	196,699	22,082	14.5	9.6
<b>FIC Deaths</b>					
Eastern	89	55	33		
North Central	183	125	55		
South Central	188	151	33		
South Western	177	171	4		
North Western	228	204	20		
Total	865	706	145		
<b>Ratio, FIC Deaths per 1,000 Population</b>					
Eastern	4.0	3.3	7.2		
North Central	4.6	4.2	7.0		
South Central	3.9	3.7	6.8		
South Western	3.3	3.4	3.9		
North Western	3.5	3.5	5.4		
Total	3.8	3.6	6.6		
<b>Reviews</b>					
	<u>Total Deaths</u>	<u>County Review</u>	<u>Residence*</u>	<u>Percent Reviewed</u>	
Eastern	89	25	27	30.3	
North Central	183	74	74	40.4	
South Central	188	92	91	48.4	
South Western	177	84	82	46.3	
North Western	228	152	150	65.8	
Total	865	427	424	49.0	

\* County of Residence is missing for three reviews.

**Table B2**

## Montana Infant Mortality Rate

	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>Total</u>
White	5.9	7.2	5.8	5.2	6.0
Native American	13.2	9.4	12.6	9.8	11.3
All Races	6.7	7.6	6.6	5.8	6.7
<u>Health Planning</u>		<u>Native</u>			
<u>Region</u>	<u>White</u>	<u>American</u>	<u>All Races</u>		
Eastern	2.8	12.1	5.2		
North Central	7.3	10.7	8.1		
South Central	7.7	10.2	8.2		
South Western	4.4	8.3	4.4		
North Western	6.4	N/A	6.9		
Total	6.0	11.3	6.7		

**Table B3**  
Deaths and Reviews,  
by Region and Age Group

**Reviews (by County of Residence\*)**

	<u>Fetus</u>	<u>Infant</u>	<u>Child</u>	<u>Total</u>
Eastern	6	11	10	27
North Central	19	34	21	74
South Central	25	37	29	91
South Western	28	28	26	82
North Western	43	53	54	150
Total	121	163	140	424

**Deaths**

	<u>Fetus</u>	<u>Infant</u>	<u>Child</u>	<u>Total</u>
Eastern	31	21	37	89
North Central	45	63	75	183
South Central	45	77	66	188
South Western	61	44	72	177
North Western	60	84	84	228
Total	242	289	334	865

**Percent Reviewed**

	<u>Fetus</u>	<u>Infant</u>	<u>Child</u>	<u>Total</u>
Eastern	19.4	52.4	27.0	30.3
North Central	42.2	54.0	28.0	40.4
South Central	55.6	48.1	43.9	48.4
South Western	45.9	63.6	36.1	46.3
North Western	71.7	63.1	64.3	65.8
Total	50.0	56.4	41.9	49.0

\* County of Residence is missing for three reviews.

## Table B4

Manner of Death, by Region,  
All Infant and Child Deaths, Montana, 1997-2000

Region	DC Manner of Death					Total	% of Reg. Total	
	Natural	Accident	Homicide	Unknown	Suicide		Natural	Accident
<b>Children</b>								
East	8	22	3		4	37	21.6	59.5
North Central	22	39	3	2	9	75	29.3	52.0
South Central	15	36	4	2	9	66	22.7	54.5
South West	20	42	1		9	72	27.8	58.3
North West	24	45	5	1	9	84	28.6	53.6
<b>Infants</b>								
	Natural	Accident	Homicide	Unknown	Pending	Total		
East	16	3		2		21	76.2	14.3
North Central	46	6		10	1	63	73.0	9.5
South Central	68	1	1	7		77	88.3	1.3
South West	35	3	3	2	1	44	79.5	6.8
North West	75	4		5		84	89.3	4.8

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**Appendix C.**

**An Intervention Framework**

# An Intervention Framework

<u>Target</u>	<u>Behavioral</u>	<u>Environmental</u>	<u>Social</u>	<u>Economic</u>	<u>Legal</u>	<u>Political</u>	<u>Medical</u>
Individual							
Parents							
Relatives							
Peer Group							
Community							
School							
Society							

There may be various mechanisms for any intersection:

- education
- new laws
- enforcement of existing laws
- construction
- resource allocation

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## **Appendix D.**

### **Tables**

# Table 1

## Summary of Prevention Findings

	Prevention Determination		<u>% Preventable</u>
	<u>Definitely</u>	<u>Not at All</u>	
<b>Child Deaths</b>			
Natural	9	28	24.3
Accident	64	4	94.1
Suicide	12	0	100.0
Homicide	12	0	100.0
<b>Infant Deaths</b>			
Natural	14	81	14.7
Accident	9	0	100.0
Homicide	4	0	100.0
Undetermined	9	3	75.0
<b>Fetal Deaths</b>			
Natural	7	74	8.6
<b>Summary</b>			
Natural	30	183	14.1
Accident/Violence	101	4	96.2

\* "Unable to be determined" prevention findings are not calculated into the preventability percentage. See **Table 1A (Appendix D)** for undetermined cases.

## Table 2

### Fetal, Infant, and Child Deaths and Reviews; Montana, 1997 - 2000

	<u>Fetus</u>	<u>Infant</u>	<u>Child</u>	<u>Total</u>
<b>Deaths</b>				
1997	49	73	88	210
1998	76	82	67	225
1999	62	71	78	211
2000	55	63	101	219
Total	242	289	334	865
<b>Reviews</b>				
1997	14	33	22	69
1998	35	44	28	107
1999	33	46	37	116
2000	40	40	55	135
Total	122	163	142	427
<b>Proportion Reviewed</b>				
1997	28.6	45.2	25.0	32.9
1998	46.1	53.7	41.8	47.6
1999	53.2	64.8	47.4	55.0
2000	72.7	63.5	54.5	61.6
Total	50.4	56.4	42.5	49.4

### Table 3

#### FIC Deaths and Reviews, by Age; Montana, 1997 - 2000

<u>Age at Death</u>	<u>All Deaths</u>	<u>Reviewed Deaths</u>	<u>Percent Reviewed</u>
Fetus	242	122	50.4
< 24 Hrs	82	45	54.9
24 - 48 Hrs	16	11	68.8
2 - 27 Days	62	31	50.0
28 - 180 Days	91	55	60.4
181 - 364 Days	38	21	55.3
Infants (All)	289	163	56.4
1 - 4 Yrs	71	34	47.9
5 - 9 Yrs	45	23	51.1
10 - 14 Yrs	72	27	37.5
15 - 17 Yrs	146	58	39.7
Children (All)	334	142	42.5

## Table 4

### Infant and Child Deaths and Reviews, by Manner of Death; Montana, 1997-2000

<u>Manner of Death</u>	<u>All Deaths</u>		<u>Reviews</u>		<u>Percent Reviewed</u>	
	<u>Child</u>	<u>Infant</u>	<u>Child</u>	<u>Infant</u>	<u>Child</u>	<u>Infant</u>
Natural	89	240	41	127	46.1	52.9
Accident	184	17	71	12	38.6	70.6
Suicide	40		17		42.5	
Homicide	16	4	12	4	75.0	
Unknown	5	26	1	20		76.9
Pending		2				
Total	334	289	142	163	42.5	56.4
Percent "Natural"	26.6	83.0	28.9	77.9		

Note: These "Manner of Death" categories are based on the summary variables in the death certificate or fatality review report. These numbers will vary slightly from the counts based on cause of death.

## Table 5

### Montana Demographics and FICMR Summary, 1997-2000

<u>Race</u>	<b>Population</b>		<u>Deaths</u>	<u>Reviews</u>	<u>Proportion</u>	<u>Death</u>
	<u>Total</u>	<u>Ages &lt; 18</u>			<u>Age &lt; 18</u>	<u>"Rate"</u>
Total	902,195	230,062	865	427	25.5	3.8
White	817,229	196,699	706	331	24.1	3.6
Native American	56,068	22,082	145	63	39.4	6.6
Other	28,898	11,281	14	33	39.0	1.2
% Native American	6.2	9.6	16.8	14.8		

## Table 6

### Fetal and Infant Deaths, by Race, Gender, and Age; Montana, 1997-2000

	Age in Days				<u>Total</u>	Reviews	% Reviewed
	<u>Fetal</u>	<u>0 to 6</u>	<u>7 to 27</u>	<u>28 to 364</u>			
White							
Male	108	60	12	59	239	121	50.6
Female	93	48	8	39	188	97	51.6
Undetermined	2				2		
Native American							
Male	20	13	3	20	56	23	41.1
Female	13	9	3	9	34	15	44.1
Other							
Male	2			1	3	14	
Female	4	3	1	1	9	15	
Total	242	133	27	129	531	285	

## Table 7

### Fetal and Infant Deaths, by Cause and Age; Montana, 1997-2000

	<u>Fetal</u>	<u>Age in Days</u>			<u>Total</u>
		<u>0 to 6</u>	<u>7 to 27</u>	<u>28 to 364</u>	
Congenital anomalies	26	47	8	20	101
Unknown / unspecified cause	37	2	3	21	63
Placental abnormalities	39	8			47
Umbilical conditions	40	3			43
Maternal pregnancy complications	25	12			37
Other conditions	13	10	3	10	36
Respiratory conditions		9	2	14	25
Preterm delivery	6	16	1		23
Other perinatal conditions	16				16
Hypoxia/asphyxia	8	6	1		15
Maternal conditions	13	2			15
Hydrops fetalis	7	4	2		13
Infection	5	2	2	3	12
Chorioamnionitis	7	3			10
Neonatal hemorrhage		5	2	1	8
CNS disorders		1		3	4
Cerebrovascular disease		1	1	1	3
SIDS			1	39	40
Injury / violence		2	1	17	20
Total	242	133	27	129	531

## Table 8

### Fetal and Infant Death Rates; Montana, 1997 - 2000

	<u>All Races</u>	<u>White</u>	<u>NatAmer</u>	<u>Other</u>
<u>Births</u>				
1997	10,840	9,391	1,290	159
1998	10,791	9,451	1,172	168
1999	10,779	9,354	1,274	151
2000	10,946	9,438	1,326	182
4 Year Total	43,356	37,634	5,062	660
<u>Deaths</u>				
Fetal Deaths	242	203	33	6
Neonatal	160	128	28	4
Postneonatal	129	98	29	2
Total	531	429	90	12
<u>Rate (per 1,000)</u>				
Fetal Deaths	5.6	5.4	6.5	
Neonatal	3.7	3.4	5.5	
Postneonatal	3.0	2.6	5.7	

# Table 9

## Montana Infant and Child Deaths and Reviews, by Cause of Death, 1997 - 2000

	Deaths					Reviews						
	Infant	1 to 4	5 to 9	10 to 14	15 to 17	Totals	Infant	1 to 4	5 to 9	10 to 14	15 to 17	Totals
Drowning	2	11	2	2	4	21	2	6			2	10
Falls	1	1	1	3	2	8		1			3	4
Fires	1	2	1	1		5	1	1	1			3
Firearm Accident			2	5	4	11	0		1	1	1	3
Machinery		2	1	2		5						
Motor Veh. Crash	6	12	16	16	80	130	4	3	12	8	21	48
Other		3	2	5	3	13	1	1	1	2	7	12
Poison					1	1						
Suffocation	6	1	3			10	5	1	1			7
Subtotal	16	32	28	34	94	204	13	13	16	11	34	87
Homicide	4	3	4	3	5	19	3	1	2	2	4	12
Suicide				17	21	38				8	9	17
Unknown Intention				2		2				1		1
SIDS	40					40	26					26
Natural	203	36	11	16	22	288	103	20	5	5	11	144
Unknown	26		2		4	32	18					18
Total	289	71	45	72	146	623	163	34	23	27	58	305

## Table 10

### All Unintentional Injury Deaths; Montana, 1997-2000, by Age, Race, and Gender

<u>Race</u>	<u>Gender</u>	<u>Infant</u>	<u>1 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 17</u>	<u>Totals</u>
		White	Male	9	8	12	26
	Female	4	16	7	7	27	61
Native American	Male	3	3	4	1	18	29
	Female		5	4		1	10
Other	Male			1		1	2
	Totals	16	32	28	34	94	204
% Male =		65.2	% Native American =		19.1		

# Table 11

## All Motor Vehicle Crash Deaths; Montana, 1997-2000, by Age, Race, and Gender

<u>Race</u>	<u>Gender</u>	<u>Infant</u>	<u>1 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 17</u>	<u>Totals</u>
White	Male	5	2	5	13	38	63
	Female		7	5	2	25	39
Native American	Male	1		1	1	16	19
	Female		3	4			7
Other	Male			1		1	2
	Totals	6	12	16	16	80	130
% Male =		64.6					
% Native American =							20.0

## Table 12

### History of Prior Abuse (Cases Reviewed); Montana, 1998-2000

<u>Race</u>	<u>Abuse</u>	<u>Reviews</u>	<u>"Risk"</u>
White	18	331	5.4
Native American	17	63	27.0
Other	2	33	6.1
Total	37	427	8.7
Relative Risk (NatAmer / White) =			4.96

# Table 13

## Adolescent Suicide, by Age, Race, and Gender; Montana, 1997-2000

<u>Race</u>	<u>Gender</u>	<u>Age Group</u>		<u>Totals</u>
		<u>10 to 14</u>	<u>15 to 17</u>	
White	Male	15	14	29
	Female		3	3
Native American	Male	1	4	5
	Female	1		1
	Totals	17	21	38
		% Male =	89.5	
		% Native American =	15.8	

## Table 14

### Deaths Due to Firearms, Montana, 1997 - 2000, by Year and Manner of Death

<u>Year</u>	<u>Accident</u>	<u>Homicide</u>	<u>Suicide</u>	<u>Unknown Intention</u>	<u>Total</u>
1997	3	3	4		10
1998	2	2	9		13
1999	4	2	6		12
2000	2	3	7	1	13
Total	11	10	26	1	48

### Deaths Due to Firearms, Montana, 1997 - 2000, by Age and Manner of Death

<u>Manner</u>	<u>Infant</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 17</u>	<u>Total</u>
Accident		2	5	4	11
Homicide	1	2	3	4	10
Suicide			12	14	26
Unknown Intention			1		1
Total	1	4	21	22	48

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**Appendix E.**

**Fetal, Infant and Child Mortality Prevention Act**

**Title 5, Chapter 19, Part 4**  
**Fetal, Infant, and Child Mortality Prevention Act**

**50-19-401. Short title.** This part may be cited as the "Fetal, Infant, and Child Mortality Prevention Act".

**History:** En. Sec. 1, Ch. 519, L. 1997.

**50-19-402. Statement of policy -- access to information.** (1) The prevention of fetal, infant, and child deaths is both the policy of the state of Montana and a community responsibility. Many community professionals have expertise that can be used to promote the health, safety, and welfare of fetuses, infants, and children. The use of these professionals in reviewing fetal, infant, and child deaths can lead to a greater understanding of the causes of death and the methods of preventing deaths. It is the intent of the legislature to encourage local communities to establish voluntary multidisciplinary fetal, infant, and child mortality review teams to study the incidence and causes of fetal, infant, and child deaths.

(2) A health care provider may disclose information about a patient without the patient's authorization or without the authorization of the representative of a patient who is deceased upon request of a local fetal, infant, and child mortality review team. The review team may request and may receive information from a county attorney as provided in [44-5-303](#)(4) and from a health care provider as provided in [50-16-525](#) after the review team has considered whether the disclosure of the information by the provider satisfies the criteria provided in [50-16-529](#)(6). The review team shall maintain the confidentiality of the information received.

(3) The local fetal, infant, and child mortality review team may only:

- (a) compile statistics of fetal, infant, and child mortality;
- (b) analyze the preventable causes of fetal, infant, and child deaths, including child abuse and neglect; and
- (c) recommend measures to prevent future fetal, infant, and child deaths.

**History:** En. Sec. 2, Ch. 519, L. 1997.

**50-19-403. Local fetal, infant, and child mortality review team.** (1) A local fetal, infant, and child mortality review team must be approved by the county health department. Approval must be given if:

- (a) the county health department has designated a lead person for the purposes of management of the review team;
- (b) at least five of the individuals listed in subsection (2) have agreed to serve on the review team; and
- (c) the five individuals have developed a plan that includes, at a minimum, operating policies of the review team covering collection and destruction of information obtained pursuant to [44-5-303](#)(4) or [50-19-402](#)(2).

(2) If a local fetal, infant, and child mortality review team is established, the team must be multidisciplinary and may include only:

- (a) the county attorney or a designee;
- (b) a law enforcement officer;
- (c) the medical examiner or coroner for the jurisdiction;

- (d) a physician;
- (e) a school district representative;
- (f) a representative of the local health department;
- (g) a representative of the department of public health and human services;
- (h) a forensic pathologist;
- (i) a pediatrician;
- (j) a family practice physician;
- (k) an obstetrician;
- (l) a nurse practitioner;
- (m) a public health nurse;
- (n) a mental health professional;
- (o) a local trauma coordinator;
- (p) a representative, appointed by the tribal government, of an Indian reservation that is located in whole or in part within the boundaries of the county;
- (q) a representative of the bureau of Indian affairs or the Indian health service, or both, who is located within the county; and
- (r) representatives of the following:
  - (i) local emergency medical services;
  - (ii) a local hospital;
  - (iii) a local hospital medical records department;
  - (iv) a local fire department; and
  - (v) the local registrar.

**History:** En. Sec. 3, Ch. 519, L. 1997.

**50-19-404. Records -- confidentiality.** Material and information obtained by a local fetal, infant, and child mortality review team are not subject to disclosure under the public records law. Material and information obtained by a local fetal, infant, and child mortality review team are not subject to subpoena unless the material and information are reviewed by a district court judge and ordered to be provided to the person seeking access.

**History:** En. Sec. 4, Ch. 519, L. 1997.

**50-19-405. Unauthorized disclosure by review team member -- civil penalty.** A person aggrieved by the use of information obtained pursuant to [50-19-402\(2\)](#) for a purpose not authorized by [50-19-402\(3\)](#) or by a disclosure of that information in violation of [50-19-402\(2\)](#) by a member of a local fetal, infant, and child mortality review team may bring a civil action in the district court of the county of the person's residence for damages, costs, and fees as provided in [50-16-553\(6\)](#) through (8).

**History:** En. Sec. 5, Ch. 519, L. 1997.

**50-19-406. Unauthorized disclosure by review team member -- misdemeanor.** A member of a local fetal, infant, and child mortality review team who knowingly uses information obtained pursuant to [50-19-402\(2\)](#) for a purpose not authorized by [50-19-402\(3\)](#) or who discloses that information in violation of [50-19-402\(2\)](#) is guilty of a misdemeanor and upon conviction is punishable as provided in [50-16-551](#).

**History:** En. Sec. 6, Ch. 519, L. 1997.